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ABSTRACT

This monograph consists of numerous short articles that discuss the system of international education in the Netherlands, its development and history over the past 25 years, and the experience of third-world students who have participated in the program. Section 1 presents general information on the Dutch international education system and how it operates. Section 2 presents the views of five people who were originators of the system. Section 3 presents the comments of various third-world students who have participated in the program. Section 4, which comprises most of the book, describes the institutes and courses that make up the international education system and also discusses the work of the Netherlands Universities Foundation for International Cooperation, which coordinates the system. (JG)

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The dutch way...

Information about the broad system of educational development assistance in the Netherlands

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Information

If you want more information about International Education than this book contains, please write or phone to:

- NUFFIC, Molenstraat 27, The Hague. Tel. 070–630550.
  (New address from September 1977: Badhuisweg 251, The Hague)
- the official representative of the Dutch Government in your country.

Contents: What is to be found in this book and where?

This book tells the story of International Education given in the Netherlands. The system is one in which supplementary education is offered for people for whom there is no course of training for a particular qualification which they can follow in their own area and who therefore study abroad. International Education is provided in the Netherlands in a manner and to an extent that is unique, and it has been going on for twenty-five years. A jubilee is thus being celebrated—in part by the publication of this book.

The Nature of International Education ..... page 1

General Information

What is it that is unique about the Dutch way of providing international education ? Does the Dutch government, for instance, give grants or scholarships—if so, how are they obtained ? What accommodation is available for persons following international courses ? This section answers these questions.

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Three Government ministers talk about the Dutch form of international education ..... page 4
Foreigners find it pleasant to study here: An interview with M. Lapré, Head of the Fellowships Division of the Dutch Ministry of Foreign Affairs ..... page 16
On the Welfare of Overseas Students. Contribution by E. Jongens, Head of the International Education Division of NUFFIC ..... page 20

The Pioneers

Many people were involved in creating and developing International Education. This section consists of conversations with four of them. Begum Ra'ana Liaquat Ali Khan was also one of the originators and writes her own appreciation of it.

"I have every reason to be content." An interview with Professor Willem Schermerhorn, founder of ITC. . . . . page 27
The sea, his foremost adversary. An interview with Professor J.T. Thijsse, Dutch expert in hydraulic engineering. . . . . page 31
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A Meeting Place for the Agricultural World. An interview with A.H. Haak, Director of IAC. . . . . page 39
A Comment from Pakistan. Contribution by the Begum Ra'ana Liaquat Ali Khan. . . . . page 43

Comments from the Third World

International Education stands or falls on the judgement of those at the receiving end of it. Many of them come from the Third World, and some of those from there who followed the courses have written about the significance it has held for them. A few of those who were actually following courses at the time this book was compiled also tell of their experiences. These articles are followed by contributions from three institutes of education which were set up in developing countries under co-operation given by Dutch International Education.

An extremely intensive programme. Contribution by J. Osei Hwedieh from Ghana. . . . . page 45
Experiences in the Netherlands. Contribution by H.L. Subba Rao from India. . . . . page 48
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Why study in Europe ? Interview with course members at ITC in Enschede. . . . . page 59
Centro Interamericano de Foto-interpretación, Bogotá, Colombia . page 64
Bouwcentrum International Education, Bandung, Indonesia . . . . . page 68

The Institutes and Courses

The final section of the book is the biggest one. It describes the Institutes and Courses which provide the International Education in the Netherlands, and also goes into the work of NUFFIC—the establishment which co-ordinates it all. The articles are followed in each case by a summarised prospectus of the training courses mentioned.

The many-sided work of NUFFIC – the Netherlands Universities Foundation for International Co-operation, The Hague . . . . . page 73
ITC, the International Institute for Aerial Survey and Earth Sciences in Enschede . . . . . page 77
IAC, the International Agricultural Centre in Wageningen . . . . . page 92
AU/MSc, the Master of Science Course in Soil Science and Water Management of the Agricultural University in Wageningen . . . . . page 99
NACD, the National Agricultural College in Deventer . . . . . page 102
BC, Barneveld College in Barneveld (Training Centre with International Courses on Animal Husbandry) . . . . . page 107
IHE, The International Institute for Hydraulic and Environmental Engineering in Delft . . . . . page 111
ISS, the Institute of Social Studies in The Hague . . . . . page 119
BIE, Bouwcentrum International Education in Rotterdam (Courses in Housing, Building and Planning) . . . . . page 127
ICEI, International Course in European Integration in Amsterdam . . page 131
ICHD, the International Course in Health Development in Amsterdam and Antwerpen . . . . . page 135
ICFSN, the International Course in Foods Science and Nutrition in Wageningen, Louvain and Ghent . . . . . page 139
ISCI, the International Summer Course on Industrialisation in The Hague . . . . . page 144
IULA, the courses of the International Union of Local Authorities . page 146
PII, the Philips' International Institute for Technological Studies in Eindhoven . . . . . page 151
PITTC, the Philips' International Telecommunications Training Centre in Hilversum . . . . . page 156
RNTC, Radio Nederland Training Centre in Hilversum . . . . . page 161
RVB, Research Institute for Management Science in Delft . . . . . page 164

Countries of Origin of Course Members

A detailed breakdown according to the countries and regions from which they have come, of those attending Dutch International Education courses, is given at the end of the book in an appendix.

The Cover

The cover depicts the four sections which go to make up the book. Each of the four blocks of the illustration are designed as to lead continually back to the starting point. Two colours in the four frames on the front intertwine to symbolise the fact that Dutch International Education would be seen as an exponent of co-operation: international co operation.

Characteristic of international education in the Netherlands

Since the beginning of the 1950's a type of education has been provided in the Netherlands which is given the general term of International Education (IE). Each year about 1,600 people from abroad—mainly from developing countries—follow the courses, usually with the help of a grant from the Ministry of Development Co-operation. There are now 17 establishments for international education which together are responsible for some 60 or so different programmes. IE is understood to be supplementary training at—generally—post-secondary level, meant specifically for persons from developing countries and directed towards the problems and needs of those countries and their people. International education aims at transmitting the knowledge and experience necessary for promoting the self-reliance of developing countries and raising the general standard of living—but particularly that of the poorest groups and regions—there.

IE training courses in the Netherlands are characterised by being:

- chiefly intended to help make up for educational gaps in developing countries;
- not so much a transfer of cut-and-dried knowledge but a laying bare of problems for which possible solutions are suggested;
- given preponderantly in the Netherlands, but in English (occasionally French or Spanish) and not in Dutch;
- of short duration, as compared with normal university studies;
- for persons who have completed a full period of study and are already employed in their particular line of work or profession;
- under a common organisational structure existing specifically for advice and consultation in matters of education co-operation in developing countries. IE establishments meet with each other in this official context for the exchange of information, pedagogic and financial planning, preparation and evaluation of projects and the framing of advice.

Since its inception, NUFFIC has accepted the building up of the emergent system of IE as one of its major commissions. The work has taken shape in several ways; initiating new courses, co-ordinating IE activities, advertising the courses, selecting candidates and seeing to their general welfare. Ties with ex-students are maintained through Netherlands Alumni Associations set up with NUFFIC's support in a number of countries.

A fanfare for the 25 years old international education

NUFFIC has grown through twenty-five years into an umbrella organisation with countless outlets for the activities which go to make up the broad canvas of its work. Few people are aware of all these outlets, and NUFFIC's canvas is indeed somewhat of a kaleidoscope. Sometimes NUFFIC is equated with the projects for university development co-operation, or with a scientific summer course, or again: diploma evaluation, or as being the centre at which all one's questions can be off-loaded and the answers quickly received. NUFFIC can also stand for a language laboratory, or for the publisher of periodicals such as the monthly "Overzicht" and the quarterly "Higher Education and Research in the Netherlands".

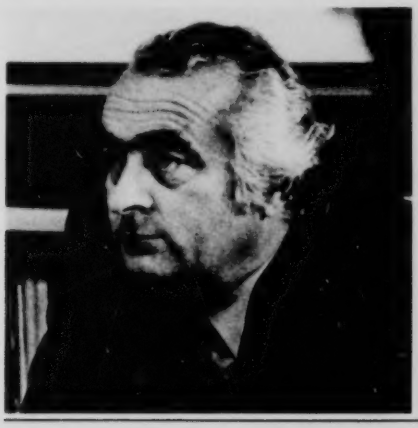
For many students in Dutch universities NUFFIC was previously equated with the special courses in the issues of development. More recently its address has become known as the source of all the tentacles of the consultative structure for co-operation with developing countries in matters of education. NUFFIC also includes in its overall jurisdiction the International Institute for Hydraulic and Environmental Engineering (IHE) in Delft, the Centre for the Study of Education in Changing Societies (CESO), the Institute for Social Science Research in Developing Countries (IMWOO) and the Project for Reintegration of Emigrant Manpower and the Promotion of Local Opportunities for Development (REMPLOD). But there is one activity which with good reason can be written large alongside the year 1952, and that is International Education (or IE). It is for IE that this Jubilee publication blows a fanfare.

IE enjoys the full attention of the Ministries of Education and Science, Development Co-operation and Agriculture and Fisheries. It is an important component of the bilateral programme for assistance of the Dutch Government. Especially pleasing is the fact that the three Government ministers who are thus most closely involved with the work were prepared to spell out their ideas on IE and its future, with which account the book opens.

Unique in the world

From the vision of the pioneers (described further in the book) has grown a system of international educational assistance which in conception and

extent is unique in the world. The Netherlands has turned its lack of an international language, which could thwart any study at university level, into a virtue. Those who follow IE courses therefore do not need to include a period of language study to enable them to enter the Dutch system of secondary or higher education. On the contrary. By the medium of instruction (in most cases English), by the length of study (one year on average) and by orientation to particular topics the system is directed towards meeting the reality of the situation of the course members who



NUFFIC-director A.J. van Dulst

hope to be able to gain expertise with which to then return as quickly as possible and involve themselves again with their own country's development. With IE, the Netherlands has built up a name for itself in many countries, in the field of education assistance. The value it is accorded is reflected in the fact that so many people appeared prepared to contribute to this publication—and it makes me very much aware of the ex-students—recipients of Dutch assistance given in this form—for whom the sojourn under our nation's roof has evidently left memories sufficiently pleasant for them to have been able to write so appreciatively.

My thanks also go to the NUFFIC and ITC staff who have ensured that this book can be presented to the public at the NUFFIC Jubilee Meeting in the Hall of Knights, The Hague, on 25 April.

I wish the book "good speed" through the world; may it find new friends for Dutch International Education—that system in which people are helping each and the other along the development road.

April 1977

A.J. van Dulst
Director NUFFIC

Three government ministers talk about educational development assistance

The Dutch International Education told of in this book is given through seventeen establishments in ten different towns. Seventeen establishments each with their own particular character; each with an individual type of specialised training. The costs run up by this system of training programmes are carried in the budgets of three ministries: firstly, that of Development Co-operation (since eighty per cent of the persons who follow the courses come from developing countries); then Agriculture and Fisheries, because all agricultural education activity falls under its jurisdiction, and last but not least Education and Science—the department from which the initiative came, twenty-five years ago, to set this form of education going in the Netherlands.
A number of questions were laid before the development minister, *Mr J.P. Pronk*, the agriculture minister, *Mr A.P.J.J.M. van der Stee*, and the scientific secretary, *Dr G. Klein*. For a start, what importance do the three ministers attach to Dutch International Education ?

Mr Pronk (Development Co-operation):
"The importance is actually inversely proportional to the state of education development in the countries themselves. Meaning that when the Netherlands started it up a quarter of a century ago we were working in a sellers' market: everything which was offered from the side of the donors (and that was chiefly rooted in ex-colonial expertise and understanding) was useful and welcome. For a great part the situation has been transformed: the developing countries now possess an incomparably greater number of skilled personnel and education facilities.
Through the years International Education has—more or less consciously, and empirically—been able to fit itself in with this ongoing process; through experience, through studies and discussions, revised principles of approach have come about on an international scale during the seventies."

Dr Klein (Education and Science):
He attaches great significance to Dutch International Education. He points to the initiative taken by his ministry twenty-five years ago, in bringing about this form of education in the Netherlands. The initial moves were furthered

by the universities, who – supported by the ministry – set up the institutes. On the direction taken by International Education *Dr Klein* says, "The efforts of a small country such as the Netherlands, in the international education field, need to be directed towards the quality of it and not so much to the quantity. This does not mean to say that the mobilisation of the potential in the Netherlands cannot in principle – while dependent on the available means of course – be built up or accelerated. It needs to be closely looked into on the one hand just what shortages are hindering the development process in the developing countries (the needs, thus) and on the other, precisely which areas our country has a lead in and possesses specific knowledge and experience (the supply side). The contribution to development co-operation through international education also means that the responsibility towards society, which higher education in the Netherlands also senses as being part of its work, becomes stronger. And this gives a stimulus to scientific research."

Mr van der Stee (Agriculture and Fischeries):
He begins by stating that priority must be given to the development of education in agriculture in the developing countries. The training of persons from developing countries in the Netherlands must take second place to this; meaning Dutch International Education in agriculture comes second. "The idea must be that such education be of a supplementary nature and preferably deal with agricultural subjects which (still) cannot be adequately taught in the developing countries. More and more facilities for agricultural education are coming into being in the Third World and International Education in agriculture in this country must be continually adjusted to the situation – must be made very flexible."
He thinks that present Dutch international agricultural education complies with these conditions, and therefore holds it in high esteem, particularly "in that the necessary experience is gained through the training of agrarian experts in the Netherlands – experience which is of great value when building up agricultural capacity in developing countries. And people are indeed already doing that. I'm thinking of the "Soil and Water Management" subject at the University of Ludhiana in India; of the courses organised in developing countries such as the Latin America Land Drainage Course (at Lima, Peru) and the "Rice Irrigation and Drainage Course" in Monrovia, Liberia; the courses organised some years ago on Nematology, in India and Venezuela, and the plans for setting up a Rural Extension Training and Service Centre."
We ask him at one point why it is that international agricultural education does not come under the Ministry of Education and Science. *Mr van der Stee* replies: "In the Netherlands, agricultural education comes under the jurisdiction of the Ministry of Agriculture and Fisheries. Together with agricultural

research and extension this education has contributed to the development of our own agriculture, stock-raising and fisheries as well as the derived industries and the supply industries – what's called agrobusiness. Obviously, then, the Ministry of Agriculture and Fisheries also took up the matter of developing international agricultural education – some twenty-five years or so ago. It's a question, clearly, of it having been woven in with other aspects of the ministry's policy."

The present possibilities for study now offered in international agricultural

Mr J.P. Pronk, Minister of Development Co-operation

education give an indication of what those initial ideas have led to. They include the MSc in Soil and Water to be gained at the Wageningen Agricultural University, eight post-graduate training courses organised by IAC in conjunction with various other establishments, and four courses and a number of incidental training courses organised by the State Agricultural College at Deventer. Up to and including the year 1976, 4,000 students from abroad had attended International Education training courses in subjects connected with agriculture; about 4,000 agricultural experts from abroad had received special training and about 500 students had followed agricultural courses given with Dutch aid in developing countries.

Comparisons made

Asked how education aid here compares with that provided by other countries, *Mr Pronk* answered, "From the outset the Netherlands has taken an approach – with the International Education courses given here – that has seemingly well been appreciated by the recipient countries. The situation is completely different for us than for donor countries whose language is still an important factor in many developing countries – the latter looking on it as a lifeline of international communication, often keeping to it as a medium of higher education. The Netherlands, unlike a number of other countries, has not wanted to force a knowledge of our language onto potential candidates as a pre-condition for receiving training here. That meant: no lengthy schooling or training in the Netherlands, but courses – primarily in English and sometimes in French or Spanish – at special institutes, directed specifically towards those who were already or would be thoroughly involved in their country's process of development. It has also meant: further education with a greater emphasis on the needs of development, and a preference for training the trainers – teaching how to transmit knowledge."

"What seems to me to be of greatest importance for the future is that the Netherlands be able to maintain the characteristic features of its International Education being ready to accommodate to changing needs. As well as this, a greater degree of collaboration will become both possible and necessary between International Education and Dutch tertiary education (in particular, the universities). A greater degree of academic backing for International Education will then align the Netherlands more with the English and French speaking donor countries. This will be worth doing in a period when, as a result of their own progress, developing countries appear to be attaching higher and more specific expectations to tertiary training."

Dr Klein makes the additional point that, in contrast to other countries, the Netherlands has not been bound by any system of education inherited from its colonial past. "Dutch International Education can therefore be more detached – also in that it has an international slant. To my mind this sort of

approach should be stuck to; and courses supervised in the developing countries will yield just as good results through such an approach."

The view on education now

Asked about the shift in the general direction of International Education training courses – as compared with that of the sixties, *Mr Pronk* answers, "The major line of thinking is still to intensify the concentration on needs which evolve; to strive for efficacy and to provide answer to the desires and problems which are being expressed in increasing detail; going along, thus, with the findings of international organisations and with activities which take place in a multilateral context. These all remain central to our thinking. As with the whole of development co-operation, the education field is also one where affairs are moving from a relatively donor-centred situation to one of being increasingly directed to possibilities and circumstances that are becoming continually more understood and definable within countries which themselves are becoming more and more differentiated from each other.
The shift of the objectives for International Education can be briefly described this way: while education was initially seen chiefly as a consumption good, the accent in the sixties was laid on considering education as an investment. The view now is that education must be wholly development oriented if it is to appear really effective; that is to say, directed towards the development of an integrated human society."
Mr Pronk confirms that the emphasis in International Education fell in the initial stages on giving fixed courses at statutorily regulated training centres in the Netherlands, for which students were and are recruited from all over the world. Policy is now directed more towards encouraging an attunement to regional and local situations in the countries concerned. To this end, as *Mr Pronk* sees it, International Education activities should preferably be undertaken in these countries themselves, and co-operation will be stimulated as much as is possible between education establishments there and in the Netherlands. In future the general attempt will be to hold back on giving education in the Netherlands to students coming here specially for it, and to put more stress on giving support to the ways and means of providing education in the developing countries themselves."

No longer general courses

Mr Pronk says, "International Education would then be carried out in those countries and take the form of projects – that is, having a definite objective which is determined on beforehand, to be achieved within a given period of time. The endeavour must also be to turn the International Education training courses which are still held in the Netherlands into the form of International Education projects aimed at a special group and with a definite objective so

that they are no longer given in the form of general courses with a content laid down and basically – small periodic adjustments apart – adhered to. As well as post-secondary level training, the new line of policy will allow for education in other sectors – elementary education in particular. And just as with the rest of International Education projects at levels other than post-secondary, these will be carried out in project form on the spot.
To summarise: A shift from donor to developing country, from fixed courses to training projects, from being bound within formal institutes in the Netherlands to expanding and building up centres in the developing countries themselves. To give expression to the aim of promoting self-reliance the attempt will also be to support, in particular, the poorest 40% by the selection of candidates and project locations; giving preference to those which serve the interests of the poorest groups of people and geographical region."

Co-operation here and there

Dr Klein's answer to the question of shifts in the general policy aims for International Education is, "In the beginning the International Education institutes put the courses together and implemented the programmes on their own. Shifts of emphasis have occurred meanwhile, by which co-operation between International Education institutes and the establishments of Dutch scientific education will need to take place to an increasing degree."
On the question of whether co-operation is best done with tertiary education in the developing countries rather than with scientific education in the Netherlands – where connections seem more difficult to effect – *Dr. Klein* remarks, "The co-operation I have advocated between Dutch establishments of scientific education and Dutch International Education institutes has been prompted by considerations of efficiency in organisation and of what allows for the greatest effect in regard of the quality of international Education. Such considerations are not new in themselves; to a certain extent my standpoint is no more than a formal acceptance of the situation as it already exists for some of the institutes, and this co-operation will probably be intensified as time goes on. And to the extent that universities become interested in instituting International Education courses, co-operative relationships would seem inevitable. The potential cultural enrichment which development co-operation work can give to Dutch education in its entirety will receive a better chance through close co-operation within the country. Though of course it is equally clear that such co-operation will not remain confined to the Netherlands: co-operative relationships will have to grow with establishments in the developing countries as well."
"The co-operative relationships overseas offer the chance to transfer International Education courses, where this is practicable; but this can only happen if International Education in the Netherlands is flexibly planned.

Transferring courses to another location opens up room—in principle at least—for introducing new International Education courses in the Netherlands. The research component cannot now be done without, in International Education. More than had been realised at an earlier stage it is now clear that we are not concerned with the transmission of knowledge available here but with adapting it to comply with developing countries' needs. In this connection I consider it important that not only is the research component put into International Education but that also attunement is effected with the PUO

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Mr A.P.J.J.M. van der Stee, Minister of Agriculture and Fisheries

projects (those of the Programme for University Projects of Development Co-operation with scientific organisations in developing countries, co-ordinated by NUFFIC). The multiplier effect will then be that much the larger in the Netherlands as well as in the developing country concerned. Not that we should lose sight of the fact that the level and the infrastructure in the developing countries have taken a different path in their growth over the past decades."

"This means that the nature and level of the subjects offered by the Netherlands must continually be readjusted. And finally it must be realised that (and I refer to what I have remarked on this above) it is a matter of two-way traffic: not only do the developing countries benefit from the knowledge and experience extant here; the Netherlands also gains from the cultural enrichment which co-operation with the Third World brings with it. The store of knowledge in this field – which at this point in time is probably still too isolated – will to my mind also have to be made accessible to those not directly involved in development co-operation."

Social criticism and social change

The question of how much attention must be paid (alongside the supplementary academic training in independent thought and decision) to motivating and mobilising pioneers in social criticism and social change, is first put to *Dr Klein.*

"International Education will primarily direct itself to problem analysis and the posing of possible alternatives. As such it must fit in with the desires and needs of those who come to the Netherlands from the developing countries. The starting point is that the purpose of their study is to acquire more knowledge by which to help solve problems in their own country. For this, the western academic tradition requires a critical approach to questions in the sense of isolating the diverse aspects and weighing up the outcome of proposed solutions. In many cases the socio-cultural setting to which the knowledge acquired here will be applied, will have to be taken into account. So the answer to questions in the matter of social consciousness and emancipation cannot be provided in the Netherlands; only in the actual situation of a developing country itself."

Mr. Pronk's reaction: "The academic quality, the effectiveness of the training courses for local situations and needs, the ability to analyse the difficulties and possibilities (both in general, and specific to an area) form the substance of International Education. Pioneer work is beginning to be part of it chiefly through the selection of countries and persons for the International Education training courses. In other words, preference is given to co-operating with countries whose development policy shows evidence of striving for an

awakening of consciousness. When formulating International Education projects, those objectives of motivation and mobilisation can be worked into and become a general part of the actual aim of the project in hand."

Fellowships and grants

Regarding the selection of the persons to follow the courses, we inquired what problems arise in giving fellowships and grants.

Mr Pronk: "As I have already said, the attempt is made to give support particularly to the poorest 40% through the selection of the candidates and of the location of projects, giving preference to those which serve the interests of the poorest groups of people and geographical regions. To expand on this then: problems in giving fellowships crop up mostly in connection with the channels through which requests for them must be made. The International Education institutes and courses have pointed this out. Requests for grants of fellowships do have to follow the official lines of procedure laid down by the authorities in the country concerned, if only to ensure that the salary of the fellow continues to be paid and that the original position held —or an equivalent one— in the development process of the home country can be taken up again on return. More than before, though, fellowships must be able to be granted through private channels— particularly for interested persons in provincial areas or rural settings away from the capital: places where it appears that the knowledge acquired can best be applied. The programme for study-bursaries in a given region is to be stepped up, the facilities under it possibly expanded and as well, special attention given to International Education projects on local, national or (sub-/inter-)regional scales. In this way the Dutch contribution of personnel and material can be brought in, to the extent required, and co-ordinated from a permanently staffed unit of the International Education or scientific education system —or, possibly, another acceptable body of experts."

Improvement of food supply

We ask *Mr van der Stee* what aspects of the vast and complex area of agriculture as a whole will, in his opinion, require special attention in the coming years.

His reply: "The improvement of the food supply for the people in the rural areas of the so-called low income countries where the greatest proportion of the poor and hungry of the Third World live. In 1980 that will involve about 750 million people. This must and can be done by

- extending the area of land under food crops;
- increasing the yield per acre of staple crops such as rice, wheat, maize, sorgum, cassava, lentils and so on.

If the productivity of the millions of smallscale farmers and peasants can be

raised, we can expect an increase in agricultural employment and a rise in the income of the rural population. Alongside improvement of food production, special attention needs to be paid to storage, processing and distribution of the agricultural products and to the infrastructure and institutions required for all this. One of the difficulties, especially in the poorer and smaller developing countries (in 1973, eighty-one of them had a population of under 5 million) for achieving the development in agriculture sketched above, is the limited number of workers who are developmentally minded, well-trained technicians and administrators. To my mind an important job for the aid-giving authorities in agricultural education lies there. The problems in the developing countries are not such as can be dealt with along the lines of the traditional western disciplines.
Only a multidisciplinary approach can lead to any solution to the agriculture question. Nothing but an integrated development of the countryside, where agricultural development is an essential factor, will bring about the urgently needed improvement in the supply of food, increased job opportunities and fairer distribution of income in the preponderantly agrarian developing countries."
How far is such an approach brought to bear in the Dutch International Education in agriculture? We put the question to *Mr van der Stee*.
"Full attention is given to the various aspects of agricultural development in international agricultural education. However, the emphasis in several training courses is on the transmission of knowledge in one or more subject, and the activities directly related to these. Thus the course in plant improvement, for example, also turns its attention to the production and distribution of seed and seedlings. The agricultural information course is not merely about methods of making information available but also covers the planning of agricultural development and the planning and evaluation of programmes for making information available—since these shall necessarily contribute to realising any agriculture development plan."

The follow-up

When we ask about maintaining contact with returned course members, that is to say—to what extent "follow-up" is desirable and possible for International Education training courses, both *Mr Pronk* and *Mr van der Stee*, give greater weight to activities in the developing countries themselves.
Mr Pronk: "That ought to be done as much as possible by having supplementary projects and refresher courses on the spot, where and when the desire for these specifically arises. Connection such as this, with courses given earlier in the Netherlands, could prove extremely useful from time to time. And therefore, of course, there must be as close co-operation as possible with local establishments and specialists, and the Dutch part must as far as

possible take on the nature of a supporting role. Setting up courses in the Netherlands in the form of training projects can also allow for the provision of a follow-up on the spot, which can then be explicitly related to the building up of educational facilities there."

Mr van der Stee: "While I find the keeping of contact with ex-students of the International Education courses of great importance, I also see the setting up of the same sort of training course in the developing country itself as being an important "follow-up". Moreover, it seems to me very important that

Dr G. Klein, Secretary of Education and Science

planned co-operation over a number of years be effected between establishments of agricultural education in developing countries and in the Netherlands —in this way maintaining and extending agrarian training courses in the developing countries."

A final point we would like to have answer to is their view of NUFFIC's part in the International Education sector.

Dr Klein: "NUFFIC can be looked on as a company set up by the scientific education establishments to be a works op but with a broker's role. Strategically, NUFFIC is a look-out po for the universities, with a view over the whole of the International Educati field (national as well as international) —or a marketplace where demand and supply come together and are equated: education shortages there and knowledge and experience here. NUFFIC has the means to serve both to stimulate initiatives in the International Education field and to co-ordinate Internation Education projects nationally and internationally. Further, NUFFIC is free to be active in involving European and other international organisations in furnishing grants and scholarships for International Education projects. Effecting direct consultation with developing countries as to their needs, and the adaptation —where possible—of International Education's "supply" should surely accord with the pattern of NUFFIC's activities. And it should finally be pointed out that the evaluation work, of International Education by NUFFIC, with an eye to the continual process of review and revision of international education, is of great importance."

Mr Pronk has this to say about NUFFIC: "The role allotted to NUFFIC in the new structure for International Education gives it a linking function of especial importance. It has acquired a special responsibility as the secretariat for the consultative council and the steering groups within that for International Education and PUO*. For this is a mediating role, between the policy aims of Government in the development co-operation field, and the possibilities and more immediate aims of the institutions active in the work. The implementation of the new policy and the new structure will therefore be dependent, to an important degree, on NUFFIC. It is, moreover, of central importance that the stand taken is not one of representing one or other of the groups concerned, but that of deliberate bearer and spokesman of the idea that competent and disinterested service to the developing world is the nub of International Education. In other words, NUFFIC should be a conscience and therefore also what we might picture as the dynamo for the Dutch development efforts in the field of education."

*This new structure—which has been instituted by the ministers concerned—entails consultation at three levels between officials and professionals to prepare advice for the ministers with respect to the whole area of educational co-operation with developing countries. (Editor)

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Mr.Lapré (Fellowships Division): A large number of foreigners find it pleasant to study here"

"I believe there is a large number of foreigners who find it particularly pleasant to study in the Netherlands. With respect to the countries of the Third World the Dutch exercise a progressive and friendly policy which is recognised as such by many of these countries. In addition to this many of my countrymen like to make contact with foreigners who reside in their country. In any case it is also very convenient that many of the Dutch speak English. This makes it possible for people who come to study in the Netherlands to make themselves easily understood from the moment they arrive in the country."

This is the opinion expressed by Mr M. Lapré. Seldom will anyone who comes to study in the Netherlands meet him. Nonetheless in most cases he has been actively involved with their coming to the Netherlands since Mr. Lapré works with the Department for International Technical Assistance (DITH) of the Dutch Ministry of Foreign Affairs, where he is head of the Fellowships Division. "Granting scholarships to people from developing countries is an important form of international technical aid," says Mr Lapré. He explains that these scholarships are intended to make it possible for individuals to come to the Netherlands to take supplementary specialist courses. About 1200 people take advantage of this possibility every year. They can come to study at one of seventeen institutes and courses in the Netherlands which have been specially set up for giving education to persons from abroad. This subject is fully gone into elsewhere in this book.

What are the requirements for people from developing countries to obtain such a grant for study in the Netherlands?

"We take it that the training programmes of the seventeen Dutch institutes and courses for international education must meet the needs of the developing countries," says Mr Lapré. "There are certain areas of knowledge in which the Netherlands leads other countries. We want to share this knowledge with people in developing countries."

He continues: "But the Dutch Government consider it very important that it should be possible to put the knowledge acquired in this country to immediate use. With this knowledge the students must be able to make a contribution to the social and economic progress of their country. For this

reason efforts are particularly aimed at the further training of people who have already completed a particular course of study and have for some time occupied a certain position."
Mr Lapré explains that candidates for a scholarship are usually recommended by the government of their country or another official authority. The government in Holland then looks into the question of whether the applicant for the scholarship is in a position to complete the training course successfully, and whether in view of their job and practical experience they can indeed be considered in a position to apply the acquired knowledge immediately.

Important role for embassies

Attention is paid to previous training received. But it is also a matter of considerable importance that the candidate be thoroughly conversant with the language in which the training course in the Netherlands is given. This is usually English or occasionally French or Spanish. A good physical and mental condition is necessary for standing up to a period of relatively hard study abroad and for this reason a medical certificate is required.
Mr. Lapré points out that the Dutch embassies can play an important role in the selection of candidates for studying in the Netherlands. "A first assessment is made of all the factors concerned at their level. They, moreover, are in a position to promote another important principle of Dutch policy, namely the desire above all else to help the poorest people in the world. International training can also contribute to this. This is why it is necessary to direct the training as much as possible toward people who are employed in those usually isolated areas where the need for economic and social progress is most pressing. This then is the objective of my country, though it will never be possible to concentrate all the activities of international education exclusively on these areas and these people. Some of the courses are too specialised for this even though they are nonetheless relevant to the needs of the developing countries."
"In short it may be said," according to Mr Lapré, "that those concerned with the Fellowships Programme here look into what work the man or woman does exactly, where he or she does this work and why it is particularly desirable that further training should take place in the Netherlands."

Selection of candidates

In order to decide these questions the candidates are requested to provide some personal information such as recommendations and copies of certificates and in cases of requests for a scholarship these must be unequivocally supported by the employer. All information is assessed by the Dutch Embassy or Consulate in the country of residence of the candidate, and then sent on to the Ministry of Foreign Affairs. The applications are dealt with by the Fellowships Division of which Mr Lapré is the head. The selection of

candidates on professional grounds is done by the Institutes for International Education who nearly always consult the Ministry of Foreign Affairs' Fellowships Division. The ultimate decision as to the granting of scholarships is made by the development minister. In doing so attention is paid to an even distribution of grants according to nationality, and an effort is made to ensure the least privileged countries and groups are given as much preference as possible.

Mr Lapré: "The Netherlands grants scholarships for training courses lasting

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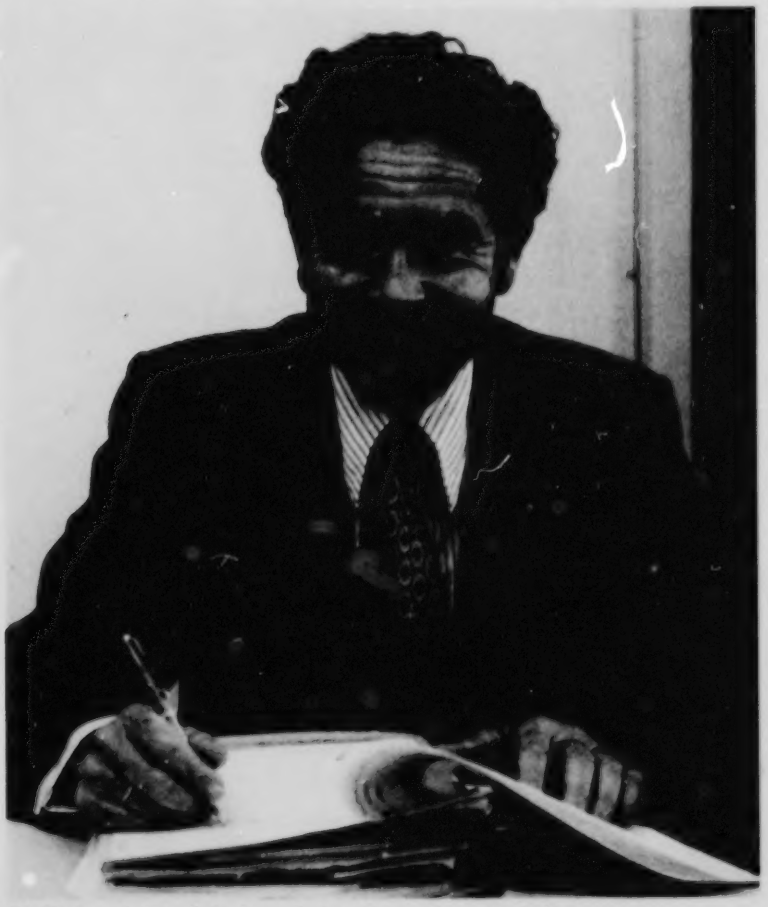

Mr M. Lapré: "pool the knowledge of the rich countries"

from a few weeks to--in general, not longer than--one year. If a longer period of training is necessary the possibility exists of extending the scholarship." The Head of the Fellowships Division explains that the scholarships include a monthly allowance from which training costs and the cost of residing in the Netherlands can be paid. "The scholarship also refunds the costs of travel undertaken within the framework of the study in the Netherlands, and for all materials necessary to the study. A limitedcontribution towards health insurance is also included. If the course member comes from a country which has difficulty in meeting the cost of the return journey to the Netherlands, the possibility exists for this cost to be met by the Netherlands as well. We fully expect the employer of the student to continue to pay his salary throughout the duration of the course. We have no objections to a course member's family accompanying him to the Netherlands, but it is not encouraged. Passages and cost of residence in the Netherlands for family members have to be met by the course member himself and are completely his responsibility."

Also in the developing countries

In conclusion Mr Lapré explains briefly that the Netherlands do not only grant scholarships for study at Institutes for International Education in the Netherlands. It is also possible to obtain a scholarship for study in one's own or a neighbouring country, since the aim of the Dutch government is to use education as a form of development aid which, where possible, takes place in the developing countries. Apart from this the possibility also exists for obtaining a scholarship for individually orientated and specialised training programmes in the Netherlands such as, for instance, sandwich courses.
"I am convinced that the Dutch programme for international education clearly meets needs which exist in the developing countries," says Mr Lapré. "There are also other countries with knowledge which can be made use of by the Third World and there are other countries which train people for the Third World. I do however consider it a great pity that the rich countries duplicate their efforts on so many points. In this area much more co-operation is necessary. Just imagine what could be achieved if all the rich countries could, as it were, pool their knowledge in order to arrive at a unified distribution of this knowledge for the good of the Third World".

Mr.E.Jongens: "On the Welfare of the Overseas Students"

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The phenomenon of foreign students attending Dutch institutes for higher education is not new. Not long after the founding of the University of Leiden, foreigners poured into this the oldest of Dutch universities. The university was founded in 1575 during the 80 years struggle for freedom against the Spaniards. The city had heroically resisted a lengthy siege by the Spanish armed forces. The story goes that as a reward William of Orange gave the citizens of Leiden the choice between ten years of freedom from taxes or the opportunity to found a university.

Though most foreign students originated from European countries, there were also students from tropical countries. For example from 1760 for many years small numbers of Ceylonese students came to institutions of higher education in the Netherlands. In Colombo they had attended a secondary school which had been set up under the auspices of the Dutch United East India Company.

Nowadays language is a serious barrier to foreign students coming to study in the Netherlands. In those days, however, Latin was the lingua franca of science. Leiden succeeded in having famous names associated with it. Among these are Hugo de Groot, who laid the foundations of international law with his book De Jure Belli et Pacis, the famous physician Boerhave, and Anthony van Leeuwenhoek who explored infinity in the invisibly small and discovered the microbes in a drop of water. The foreign philosophers Descartes and Spinoza also felt themselves at home in the tolerant atmosphere of the Republic of the United Netherlands. Leiden did not long remain the only university. Soon followed the universities of Franeker (1585), Groningen (1614), Amsterdam (1632), Utrecht (1636) and Harderwyk (1648). Six universities for a small country with in those days less than a million inhabitants proved to be rather too many, especially when surrounding countries increasingly founded their own universities, with the result that the flow of foreigners to Dutch institutions for higher education began to lessen considerably.

After 1876, when Latin was abolished as the universal language for higher education, hardly any more foreigners came to study in this country, the

exceptions being students from what were then the Dutch colonies. Till 1945 there was little change in this situation. After the Second World War many countries in Asia and Africa became independent. For many students there were not sufficient training possibilities in their own countries, with the result that large numbers of students from the Third World enrolled in universities in Western Europe and the United States. This stream almost completely by-passed the Netherlands. The main stumbling blocks are language, the long period of study and the fact that Dutch university degrees

The author of this article is E. Jongens, head of the International Education Department of NUFFIC. Here he congratulates a participant of the Soil Science Course on gaining his certificate.

are unknown in developing countries. In view of this a different system was instituted in the Netherlands. In the course of the past 25 years about 60 training courses, supplementary to a secondary education, have come into being. These courses are either completely or mainly organised from development funds and are intended mainly for students from developing countries. In addition to the academic programme, the social guidance of students from developing countries is also considered of paramount importance. This is apparent from the fact that the Council of Europe has devoted three conferences to the subject: "On the Welfare of Overseas Students in Western European countries". Most of the recommendations of these conferences

have been put into practice in the Netherlands. These recommendations relate to the following subjects.
It is extremely important that the course members be properly informed in their own countries concerning the study period in the Netherlands and as to the way of life. A first requirement is that they should be supplied with brochures on these subjects. Since the best information can be provided by fellow nationals who have taken the course in question, every effort is made to provide the addresses of those who have taken the same course in the Netherlands not too long before. In this connection the Netherlands Alumni Associations which have come into being in some countries are able to be of considerable assistance.

Reception on arrival

Especially in the first weeks the course member must be shown the ropes in a situation which is strange in many respects: a climate which calls for what is often a completely different manner of dress, different heating requirements, different food, in short a life style totally other than the one brought up in or accustomed to. It is also important that the newcomer make the acquaintance of fellow students. The educational value deriving from association and exchange of ideas with fellow students is considered by many course members to be an extremely important element of their stay in the Netherlands. Pandit Nehru referred to this fraternisation in a talk to members of the International Institute for Aerial Survey and Earth Sciences as being of perhaps greater value, more precious even, than the acquisition of technical knowledge. Experience has also shown that a small country such as the Netherlands can serve as a good meeting place for nationalities who are politically sharply opposed to each other, such as Arabs and Israelis, Turks and Greeks, South Africans and other Africans. To further relations between students among themselves and with the staff, many institutes organise an introductory period in a conference resort where, in addition to lectures about the guest country and excursions, students are given every opportunity to form permanent contacts. These gatherings are also of considerable value to the families of the course members.

Living accommodation

Due to population growth and the higher demands which are placed on the quality of housing in recent years, there continues to be a shortage of housing for the middle classes in the Netherlands. Language problems, different concepts with regard to cleanliness and cooking habits, make the renting of living accommodation to foreigners less attractive to landladies. Some institutes for international education have their owns halls of residence, but course members of most institutes are housed in accommo-

dation spread over the city. This situation does not only harbour disadvantages, though. Many landladies offer the course member a real home and maintain contact for years after the person's departure. The course members also have more opportunity to become acquainted with Dutch society than in the halls of residence where contact is exclusively with foreigners. Those who cannot or do not want to cook at home can visit Indonesian or Chinese restaurants of which there are large numbers in the Netherlands. These are in general cheaper than restaurants serving ordinary Dutch cuisine.

The importance of not taking too lightly the stipulation for an adequate knowledge of English cannot be sufficiently stressed.

Language

The course member does not have to know Dutch to be able to take the course, but nor is English the actual tongue of most students. Students from East Asia and the Latin American countries encounter particular difficulties in this area. All course members must take a language test in their own country, but in spite of this, language still sometimes proves to be a barrier. This does not only make study more difficult, but is also experienced as a loss of face.

The importance of not taking too lightly the stipulation for a sufficient knowledge of English cannot be sufficiently stressed. Some institutes are in possession of a language laboratory, but the heavy study programme hardly leaves open the possibility for extra study. On request, a few institutes organise a course in elementary Dutch. Some knowledge of the Dutch language does have the advantage that unpleasant misunderstandings are avoided such as arose when some students were told that accommodation had been provided for them for the first few days in the Bad Hotel. They wondered why they deserved such treatment. Their minds would have been more at ease before their arrival in the Netherlands if they had understood that they were not going to stay in a bad, but a 'holiday resort' hotel.

Contacts with Dutch society

Since courses are in English and there is consequently no necessity to know Dutch, the course members are to a certain degree isolated from Dutch society. Moreover as they only remain in the country for a relatively short period, little need is felt for integration. It is however found worthwhile for students to become acquainted with what takes place in the areas of welfare, tourism, politics and economics. Possibilities for this are offered by means of

the bi-country "friendship associations" such as the Netherlands–India, the Dutch Arab Circle, the Netherlands-Spanish America ones. In addition to this, "Meet the Netherlands" weekends are organised by the Foreign Student Service in co-operation with NUFFIC. During these weekends attention is devoted to various aspects of Dutch society. These weekends are held in conference centres pleasantly situated in various parts of the country. Since the course-members cannot read Dutch newspapers, NUFFIC brings out a short weekly Newsletter in English. Furthermore social evenings are regularly organised, as well as excursions both within the country itself and to neighbouring countries. The more technical courses, such as those of the International Institute of Hydraulic and Environmental Engineering, organise weekly technical excursions for participants. These excursions also offer the course members the opportunity to become acquainted with a higher standard of work efficiency, with the time factor in the work situation and with the organisation pattern in the western countries. An example to illustrate this: a foreign course member once visited the Central Bureau of Statistics. At first he assumed that no work was being done that day. The corridors were deserted. He was amazed to discover that everyone was at work in his own room. Back in his own country he also successfully introduced this system.

Approximately a quarter of the course-members are accompanied by their families. Since their days are not taken up with work in connection with the course, their reception is often more important than that of the students themselves. In most cities where international training courses are held, International Neighbour Groups are organised. These consist of volunteers who meet with and bring together the foreign dependents, and introduce them to Dutch society.

Health care

A different climate and way of life can result in greater susceptibility to sickness, though in practice this is found to occur relatively seldom. A sojourn in hospital in a western country is a costly affair. For this reason all course members and their families are compulsorily insured.

Follow-up

Ex-course members should know that institutes for international training would be pleased to maintain contact with alumni. This can be realised by means of Newsletters for Alumni in which recent developments in the institutes are discussed and in which alumni get the opportunity to pass on information to the institutes and their former colleagues regarding their experiences in their work in their own countries. Since knowledge soon becomes obsolete nowadays, refresher courses and roving seminars are not

merely superfluous luxuries. Alumni can be of great assistance in the organising of such courses in a developing country.
On the initiative of NUFFIC, in a number of countries Netherlands Alumni Associations have been founded. These provide fellow nationals who are going to participate in international training courses in the Netherlands with information, receive staff from Dutch universities and institutes for International Education, and organise lectures, if this is wished, in the interest of alumni and colleagues. Some associations go further and extend their activities to the cultural sector by the organisation of films and exhibitions about the Netherlands. As a result of these activities, close ties come about between alumni of various disciplines which formerly had hardly any contact with each other. One result of this may be the initiation of multi-disciplinary projects, for example in the interest of the poorest sectors of the population.
The association which has developed the widest range of activities is the Netherlands Alumni Association of Sri Lanka, which among other things in 1975 organised a Holland Week in Colombo. Within the general programme of the week's events a seminar was held concerning Inland Water Transport. This was of importance for the redevelopment of the old Dutch canal between Colombo and Puttalam which as a consequence of the oil crisis is again being made available for inland shipping. Apart from Sri Lanka, associations have been established in India (New Delhi), Korea, Nepal, the Philippines, the Sudan and Thailand.

Professor Schermerhorn: " As founder of ITC I have every reason to be content"

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Immediately after the end of the Second World War–from which the country had emerged exhausted and in ruins–Professor Willem Schermerhorn was prime minister of the Netherlands. He held the position for a little longer than a year and is not inclined to look upon that short period in such high office as the height of his career; on the contrary. Professor Schermerhorn was one of the founders of the largest establishments of international education in the Netherlands: the Institute for Aerial Survey and Earth Sciences (ITC). Looking back on a life which began in 1894 he says, "My subject was photogrammetry and ITC has contributed to the development of that–which is why ITC is closest to my heart among all the things which I have done in my life. The rest happened either by chance or accident."
After a moment he continues: "I have every reason to be content. Of course, many alterations are being made in and around ITC; but it would be silly to be bothered about the fact that everything is changing and you're too old to have something to do with it. One should be glad of these new developments–they are a sign of life. And what's more: the ITC of today is precisely the institute I'd imagined it could become at the time of setting it up."
In 1926, when he was still only 32, he became professor in surveying and geodesy at Delft Technical University. Air photogrammetry was in its infancy. Professor Schermerhorn had great interest in the new development and introduced it into the Netherlands. His political career after the Second World War might seem to have been short, and–while nevertheless remaining a member of parliament for many more years–much of his attention had in fact already turned back to photogrammetry in which field he had earned himself worldwide scientific renown.

Practical scientists

"The Netherlands plays a leading part in a few specialised fields of technology," says Dr Schermerhorn. The morning sun pours into the living room of his flat, bathing the easy chair in which he is sitting. He has taken his glasses off and gestures lightly with them, making the point that hydrology is a good example of one of those sciences to which the Netherlands contributes notably.
"Despite their expertise hydrologists remained persons who are concerned

first of all with the practical aspects. They did not just stick to theoretical knowledge alone; their interest was more in the application of what the theory taught them. Nor was it any different in the Netherlands with those involved in photogrammetry–and I have the idea that the reason for this was that both subjects were developed at the Technical University in Delft. ITC also had its home there during the first years of its existence and was certainly influenced by that. It is still the case that one can expect a person who studies at Delft University to become a practical scientist."

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This conversation with Professor Willem Schermerhorn took place in September 1976. Some months later, on March 10th 1977, he died at the age of 82. We still decided to publish the interview with the founder of ITC, just because he was one of the most distinguished pioneers of Dutch International Education.

To talk with Professor Schermerhorn is to talk about photogrammetry–"my subject" as he repeatedly calls it. His glasses held in his right hand he gestures more broadly with them as he says, "Photogrammetry has become a big subject. It has been used for fixing co-ordinates for every little point on the earth's surface. But it was a very small subject then. There were only a few who practised it. Even in the Netherlands it wasn't possible to collect a strong scientific staff together until quite some time after ITC's founding. What we did was to attract a number of young persons from abroad to whom we wanted to give the opportunity to develop along with the Institute. They worked at ITC in a period in which the subject itself was developing enormously. Photogrammetry explained what was to be seen from the air, and recorded where it was to be seen."

"In my subject the fact that photographs taken from the air can be given many interpretations did not weigh too heavily with us. We found that to be of lesser scientific importance and made no fetish of it. Photogrammetry was a matter of knowing the rules by which you could solve any problem." He thinks for a while and then adds with a smile, "The emergence of new techniques has caused a certain shift of ground in our conceptions. Interpreting the observations of air-photography is now very sophisticated work: checking the state of agricultural crops, tracing diseased trees, investigating the behaviour of motorists–all these have their place. New developments are still occurring in this particular area and ITC are working along. If the Institute can succeed in this, its somewhat unique position in the world–which it has held for a number of years now–will be maintained."

Another thing that, according to Professor Schermerhorn, has developed a

great deal in ITC's quarter century of existence, is cartography. He says, "It's good for this to have happened. Cartography is an area which has been neglected for too long. It has become a properly recognised subject only in recent years, and an international scientific organisation has finally come into existence. A perfectly correct development, since cartography is the end product of a long process which costs a lot of money. The processing of the end product carries much weight and also determines the degree to which the preliminary – scientific – efforts pay their way."

Professor Schermerhorn: the best way to meet the special demands

The professor drains his coffee. There is a pause in the conversation. Between two sips, and with the characteristic slow smile, he says, "Did you know that photogrammetry has always been a little in competition with astronomy ?

Ridiculous really because the two sides of the work are clearly differentiated; there is a clear difference in character: they look up and we look down ! "
Conversation turns to International Education and the way it has developed in the Netherlands. Professor Schermerhorn believes that International Education must retain its independent position into the future – separate from the rest of Dutch education though where necessary in co-operation with it. In his opinion that is the best way to meet the special demands which are made of international education.

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Important reputation

"Take ITC, for example," he says. "We began in Delft – a town in which there was already a technical university. But yet there was a huge difference between the two establishments, be it merely a question of the medium of instruction (not Dutch), or of our making the courses as short as possible or that we have our own system of diplomas and university degrees. Dutch education has arisen out of Dutch society, of course; but IE is bound by its nature to concentrate its gaze abroad. It is the world overseas which determines, for example, the value put on the degrees we issue – and it is not the piece of parchment itself, nor the title, which is important in the matter but the reputation of the establishment which confers them."
The professor shifts in his chair a little. It is getting hot from the sun shining into the room. The glasses in his right hand describe another small movement through the air – which could be taken as announcing the start of another monologue, but is intended as putting an end to the conversation. The man who was prime minister for a year but who quickly reimmersed himself in the scientific subject which remained dear to him, speaks once more: "Many elements contributing to the emergence of International Education in the Netherlands are what you could call chance developments. It begins with the fact that in this small country of ours a few branches of science nevertheless originated which were to have great significance for the Third World. Within this country there were quite a number of people working whose interests were very much directed abroad. I was one of them. We were often involved in the aid which the Netherlands gave to the Third World. The way in which such aid came about was more or less accidental in the years following the war. I represented the view that such haphazardly given aid should be provided with a common purpose. International Education thus arose as a result of two things: the need for the application of knowledge, and the spread of that knowledge over the world as a whole."
"But ITC has always been more to me than a mere chance result of circumstances. I'm too old now to help give a lead in the developments. But I'm very much with them in spirit. And that seems logical, when you consider the establishment of such an institute to be one of the high points of your life."

The sea was the foremost adversary of Professor Thijsse (Dutch hydraulic expert)

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Professor John Theodore Thijsse has long since surpassed his three-score years and ten. He was born in Amsterdam in 1893. He belongs to that small elite of Dutch hydraulic engineers which the Netherlands has thrown into prominence in every century of its history. It is thanks to them that the largely low-lying Netherlands, crisscrossed as it is by many waterways, has been able through the ages to hold its own against the water. Professor Thijsse is now retired and lives in Lisse—a short journey away from the sea: the element which at four particularly crucial periods in his career was his foremost adversary.

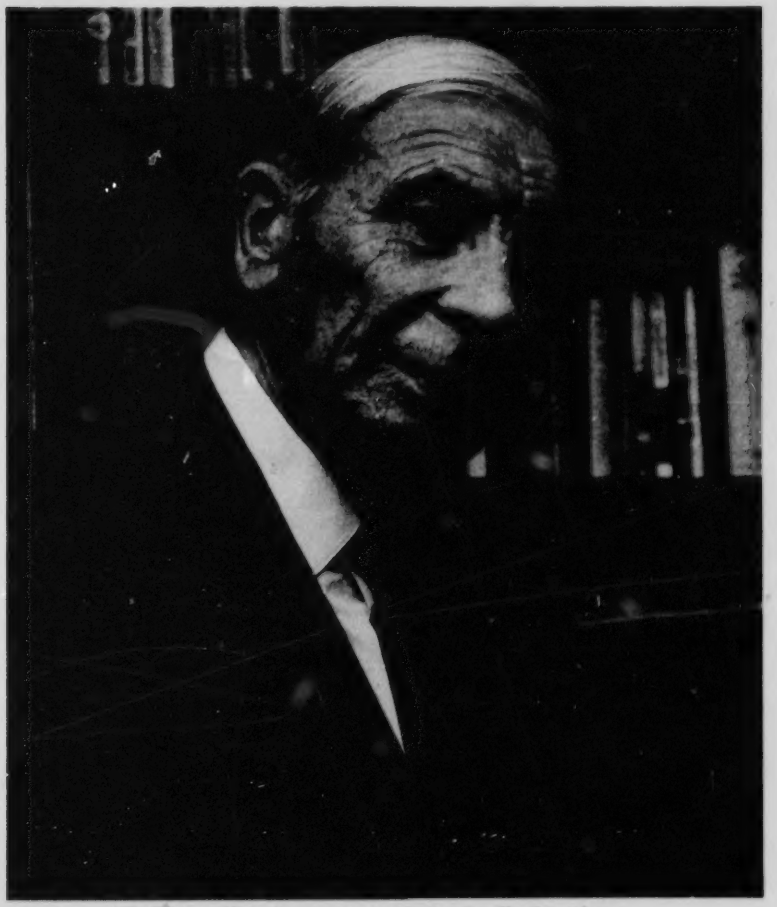
Those four periods ! They include the years when he was involved with the enclosure and partial reclamation of the Zuiderzee, a colossal feat of hydraulic engineering on which work has been in progress for the past half century; also the role which he played in repairing the damage to the island of Walcheren which was flooded during the Second World War; his contribution to the restoration of the damage after a storm disaster in 1953 when two thousand people were drowned in flooded polders; and his important share in the work of the Delta Commission which, after the storm disaster, prepared the plans for closing off a number of inlets of the sea.

Professor Thijsse was also involved in founding the International Institute for Hydraulic and Environmental Engineering (IHE), and till 1967 took an active part in the international education field in the Netherlands. He says: "I was Director of the Hydraulic Laboratory in Delft. We received many requests for advice from other countries, for in this field the Netherlands has international fame. We were pleased to give this advice, but there was one problem: people to whom advice is given must have sufficient know-how to be able to make use of this advice.

Specialistic training

"The idea of a form of Dutch international education grew out of this itself, so to speak", continues Professor Thijsse. "One desires to help other countries to acquire knowledge. This can best be done by providing the possibility for people from these countries to acquire this knowledge in their own surroundings. Where, however, it is a question of a clearly specialistic training in a

certain area, this must be done in a country where such specialistic know-how exists. In the area of hydraulic engineering, that country is the Netherlands, and for this reason the IHE came into being at Delft."
Professor Thijsse adds that he was also for a number of years a member of the Board of NUFFIC, the organisation which co-ordinates Dutch international education. "I have always advocated that in international education a country should limit its activities to those areas in which it excels and that these activities must be well performed. The fact that the Netherlands excels in



Professor J.T. Thijsse, Dutch expert in Hydraulic Engineering.

hydraulic engineering is really not surprising. The Dutch inhabit a very low-lying piece of Europe bordering on sea. Viewed historically they were thus obliged to become specialists in the area of hydraulic engineering. For them expertise in this field represented part of that fight for existence encountered in various forms everywhere in the world."

Nine hundred years

"The Netherlands can help those countries which are faced with similar problems," says Professor Thijsse, "and it really makes little difference whether these are developed or less developed countries. In either case much time and effort will be required before the hydraulic problems have been surmounted. It should not be forgotten that it took the Netherlands, of necessity foremost specialist in this area, nine hundred years to solve most of its own problems. And we are still at work: with the Zuiderzee Works, with the Delta Works. There are nonetheless countries in the Third World which are faced with greater problems than we. A country like Bangladesh is comparable with the Netherlands. But their rivers are larger than ours. Their sea moves more silt than ours does. Their tides are much stronger. The lowest reaches of the Ganges, Brahmaputra and Megha flow through Bangladesh and transport more water into the Bay of Bengal than the Amazon does into the South Atlantic. When these facts are considered, it would appear more logical that these problems take nine thousand rather than nine hundred years to solve, while the conditions existing in the country are such that they actually need to be solved in nine years."

Perhaps never ideal scientists

Professor Thijsse points out that it is such problems existing in the home countries of participants of courses for international education which must be taken into account. He explains that perhaps the International Institute for Hydraulic and Environmental Engineering which he helped to found has never produced ideal scientists. Nor was this intended. The aim was to help people with the aid of knowledge existing in the Netherlands.

"I think we have been successful in this," says Professor Thijsse. "During the first years of IHE one had to search for and find the correct manner of work. When we started we intended in any case to hold a second course and then perhaps even a third course. At the time we had no idea that the day would come when we could look back on more than twenty annual courses."

The longer IHE existed the more ex-students—alumni—Professor Thijsse came across during his travels abroad: in Karachi the Port Director, in Dacca the Junior Minister at the Department of Public Works, and in one place during a ceremonial parade an ex-student appeared suddenly out of the crowd to disappear again just as quickly. But the growth of IHE was not only of

importance in widening the international contacts of Professor Thijsse. He says, "I have always considered it a great advantage that participants in the hydraulic courses came from so many different countries. There were many people present from the poor countries, but there were also participants from the rich countries, and the contacts between all these members from all these countries were generally excellent. Some course members came from countries politically opposed to or even at war with each other but the fact was barely noticeable if observable contacts between course members in

Professor Thijsse is still interested in his specialism: fighting against the sea.

Delft were the yardstick."

Better relations

Up to this moment Mrs Thijsse has been following the interview with her husband with considerable interest. Now that he mentions this aspect of international education she adds some comments in support of what he says. She recalls the time when she was associated with the work of the so-called International Neighbourhood Groups. These are groups of Dutch women active in cities where institutes for international education are situated. Some of the participants of courses in international education bring their families with them to the Netherlands. The International Neighbourhood Groups help these families to feel at home in Dutch society. Mrs Thijsse also feels that the contacts resulting from international education are of great importance. Her husband concludes: "The courses which we organise were of course primarily intended to impart scientific knowledge. If they also contributed to better relations between people of various nationalities then this is an important bonus."

Past ISS-director De Vries: "The Netherlands are an attractive feature"

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"Among all the many factors which have bearing on a decision to study abroad, the Dutch system has certain attractive features to those in other countries. This is not due solely to our own efforts; it is equally a matter of luck." The man who says this is Professor Egbert de Vries. He is in the Netherlands for a short stay when this talk takes place, and is in fact on the point of departure for a conference in Algiers. For Professor de Vries, born in 1901 in the Dutch village of Grijpskerke, is still a busy man in spite of his venerable age.

At present he resides in the United States where he works at the University of Pittsburgh. He gives lectures and works in close co-operation with the School of Public and International Affairs there. This institute was founded in 1957 on the example of the Dutch Institute of Social Studies (ISS). Professor de Vries was for ten years Dean of ISS and co-director of NUFFIC, the co-ordinating organisation in the field of international education in the Netherlands.

He has had a remarkable scientific career which started with his studying agricultural engineering. Later he turned his attention increasingly to the social sciences, which found expression in work published by him and in his appointment as Dean of ISS. Professor de Vries originally specialised in tropical horticulture, and was the first horticultural consultant in the Netherlands with an engineering degree. Before and during the Second World War he spent a number of years in Indonesia and in 1940 founded an agricultural faculty there which became a faculty of the University of Indonesia. In the politically busy years of 1947 to 1950 he acted as delegate of the Dutch government, and in that capacity attended no fewer than twenty-seven international conferences.

These years lent him wide international experience. He says, "At that time much was happening at an international political level. These were the years in which such organisations as the UN and the World Bank came into being. Most negotiations and developments of the present time – in this context I am thinking of UNCTAD – are a continuation of initiatives taken at that time. "I have reached the age at which one is inclined to draw up balance sheets."

says Professor de Vries. "In so doing I have not failed to take international education into account. I ask myself what has been the result of the years in which people from scores of countries came to study at the Institute of Social Studies in The Hague and at a similar institute in Pittsburgh. I think that over the years somewhere in the neighbourhood of twenty-three hundred people have trained in these two institutes. A large proportion of these people came from developing countries, though that percentage is lower in the United States than in the Netherlands.

Professor Dr. Egbert de Vries, talking to the author of this article, Henk J.J. Ossewaarde.

I think I can give the answer to the question of what the results have been especially as far as this concerns ex-students – alumni – who have studied in the Netherlands. And in this connection I am referring to all international education in the Netherlands, not only to ISS. We imparted as much technical knowledge as was possible to all the people who came to study with us for short periods. With this knowledge they were better able to approach the development problems in their own countries. This then is a result of international education. There were things which other developed countries could also do for countries of the Third World, but in addition to this a country such as the Netherlands had a few special qualities to offer. We have tried to make use of these qualities. If we have succeeded I consider this to be perhaps the most important aspect of the results of international education."

For many countries attractive

"I think I should explain what I mean by these special qualities," says Professor de Vries. "This relates back to a remark I made at the beginning of the interview: the Netherlands is for many countries attractive when the question arises as to which country they should send their people to study. For these developing countries knowledge which is obtained in one other country is of little value, since their students would then only become acquainted with the scientific, political and cultural traditions of that one country. Often the greater the cultural and political weight of the country, the more weight these traditions carry. If your people study in a number of countries, you will be less troubled with this problem."

"On their return to their own country the traditions of the various countries, as experienced by the students, balance each other. And if they have obtained their knowledge in one country with limited political and cultural power, this is even to be preferred," according to Professor de Vries.

"The Netherlands is such a small country with little political power and a not very important culture," he continues. "We have no weighty traditions to defend like the Americans and the Russians. We represent no important culture like the French, the English or the Germans. As a result of this the philosophy behind international education could develop along the principle: come at our invitation and acquire know-how in the Netherlands; widen your view in the international sense without attaching too much weight to our culture." Professor de Vries expresses the opinion: "The special qualities of the Netherlands result from the fact that we are not an international power. On this account, in our relations with the poorer countries we can play a pioneering role. Countries such as Sweden, Canada, Norway and Denmark also have such a specific international reputation. From this follows logically that Dutch international education was from the very start directed at the whole

world."
"A country such as France on the contrary would be inclined—and France indeed does so—to concentrate its efforts exclusively on francophone countries: thus that part of the world which already has a spark of French culture. France is thus automatically inclined to defend this French culture in other countries."

More than technical knowledge

"The saying goes that training at the University of Moscow breeds capitalists while training at Harvard University (in the United States) awakens sympathy for communism," says Professor de Vries. He does not attach more than anecdotal value to this story, but uses it to illustrate his own trend of reasoning. He continues: "Naturally participants of international training courses in the Netherlands will take back more to their own countries than purely technical knowledge. But these intangibles are much less decided by political systems and cultural traditions. It is difficult to describe what these factors comprise. They are related to the fact that international education makes possible contacts between people from scores of countries. They are related to a certain manner of independent thinking and the pioneer role which the Netherlands as a small country can fulfill at the level of international education. The cost to the Netherlands of international education is far less per annum than that of defense. It is not even a large percentage of what the country expends on development aid. I believe that it is not only important to impart knowledge, but that the special attributes of being a small country must also be utilised. If these considerations are weighed, then international education is certainly more than worth the effort it entails."

Conference of alumni

"You know what we really should do? " says Professor de Vries at the end of the interview. "We should organise a conference of alumni: people from many countries who have studied at various institutes for international education; people who have taken such a course many years ago and people who have only recently completed such a course. We should put the question to them whether they think we have been successful in our work and what changes should be made. They should be able to tell us what their problems are and how we could help them with these problems. And they should be able to help us by seeing to it that those people for whom it is intended find their way to international education."

IAC-director A.H.Haak: "We are a meeting place for the agricultural world"

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"When we started we wanted to have a spot where it would be possible to provide information, for example to people from developing countries, concerning developments in agriculture. But the international agricultural centre which we now possess is much more than this. It has become an international meeting-place for the agricultural sciences, and that is what we now desire to be: not only an organisation which administers courses for agriculturalists requiring further training, but especially also a place which serves–during courses, conferences and other gatherings–as a rendez vous for the international world of agriculture."

The man who says this is seated in a modern and comfortable office where an abundance of light floods in through the mainly glass walls. His office is part of a large building which is only a few years old. It was built among parkland in the small town which has become the centre of Dutch agricultural sciences: Wageningen. The building bears the name International Agricultural Centre (IAC). The name of the man to whom we are speaking is Mr A.H. Haak. He is director of the IAC and has for a quarter of a century–from its start–been closely related to international education in agriculture in the Netherlands.

Mr Haak: "At the beginning of January 1951 I became secretary of the commission on Technical Assistance in Agriculture, of which the internationally known agriculturalist Professor C. Coolhaas was chairman. The commission had been created to look into the ways in which the Netherlands could help the young countries in the development of their agriculture. It was also the first organisation in this country which offered technical aid to developing countries. The commission was first occupied with a question posed by the Food and Agriculture Organisation of the United Nations (FAO). The headquarters of this organisation wanted to know whether there were available in the Netherlands non-specialised agricultural experts with several years of experience. The Netherlands certainly possessed the necessary experience in tropical agriculture, so we could immediately reply that we were if necessary in a position to find a hundred such people."

Mr Haak is a good conversationalist. He relates how interest was shown by increasing numbers of people from developing countries for the knowledge possessed by the Netherlands (the research institutes concentrated in

Wageningen and the Agricultural University in particular). Some of these people enrolled as students to pursue the long and arduous road of acquiring this knowledge as offered by the system–unfamiliar to them–of Dutch scientific education. Others came to Wageningen with more specific questions and the scientific staff of the research institutes and of the Agricultural University made every effort to provide them with the answers. "But questions which we answered one week were often posed by another group the next week," says Mr Haak. "As a result of this the need arose to structure

Ir. A.H. Haak, Director of the International Agricultural Centre.

the giving of information. Thus, really by accident, Dutch agricultural education at an early stage developed principles which at present constitute the educational philosophy of the whole of international education. We aimed at a system of courses for people who had already completed a particular course of study and who had need of specific knowledge. For this purpose courses were required in which we could pass on maximum information in as short a period as possible since we did not want to interrupt the work of the participants in their own countries for unnecessarily long periods. And we attempted to select those subjects which provided the knowledge required in developing countries and in which we had something to offer."

The only reason he passed

Mr Haak was born in 1921 in Malang in Indonesia. He received his secondary education in the Netherlands and had to take his school-leaving exams in May 1940, the moment during the Second World War when the German armies overran the Netherlands. "That is probably the only reason why I passed," he comments now. It was his intention to pursue a course in government administration, but due to the German occupation that was not possible. He thus fell back on his second choice of study: the Agricultural University in Wageningen. But this course of study too was retarded, among other reasons because Mr Haak is one of those people who offered resistance to the German occupiers. It was July 1949 – four years after the end of the war – when he graduated in tropical agriculture. He obtained a private scholarship, went to the United States to study agricultural economics, and later worked there for a short time in the tobacco-growing industry. Back in the Netherlands he became involved in building up development co-operation in the agricultural sector – work in which he has remained, being jointly instrumental from the start in the training given to persons from abroad: what is now International Education.

Also for conferences

"Space for international education in Wageningen, already crowded as it was due to the Agricultural University, was very limited," says Mr Haak. "We even had to postpone increasing the number of courses till we obtained possibilities for expansion in a new building. After a lengthy wait, this new building could finally be brought into use in February 1972. The plan of the building incorporates the idea that the centre should not only provide for practical courses but also for organised conferences which should be able to split up into discussion groups." These conferences in turn reflect the great value which agricultural education has traditionally attached to the dissemination of information. Mr Haak: "One could say that most scientific disciplines rest on two pillars: training and research. Agriculture however is

supported by three concepts: training, research and extension. And this is understandable, for the development of a country begins with agriculture. This is the first step toward development. For this reason we consider our agricultural extension course to be of great importance to the developing regions."

"The International Agricultural Centre also gets many participants in courses from other parts of Europe. It is one of my hopes to be able to give two courses in agricultural information in this building: one for people from the more developed Western European countries and another for participants from developing countries. The closing sessions of both courses would be held jointly. On the basis of contacts with agricultural experts from this part of the world it would then be possible to show people from the developing countries that rural extension is especially important in their countries. It could also demonstrate the point that, the more a country develops, the more the problems of the farmer—and consequently the agricultural advisers—increase."

System of ad hoc courses ?

How will international education in the Netherlands develop further ?

"Where possible, in co-operation with the people in developing countries, we must organise training both in the developing countries themselves and here. I think that to supplement this, a system of ad hoc courses in the Netherlands must continue; courses which are drawn up so flexibly that they can be organised whenever people in the Third World feel the need for them, but which can be done away with when the need for them becomes less or the Third World can itself provide the required training. What I mean is: if Libya needs instructors for artificial insemination we must provide a course for them. And if Tanzania asks for training for experts in animal husbandry then it must be possible to organise a course for this."

"After twenty-five years of international agricultural education, it can be said without arrogance that we have a reputation which must be upheld. Our training courses are short and we have good reason for this. They are too short to be recognised as qualifying for a university degree or a diploma. At the same time, they carry too much weight for the course members to be left without anything to show they have completed one of our training courses. For this reason we do present graduates with a certificate. Nearly all governments nowadays recognise the value of this document. In the course of time it has acquired such a value in the eyes of many who have followed the course successfully that they consider it worth framing and hanging on the wall."

Comment from Pakistan: "Best possible method of building desirable human bridges

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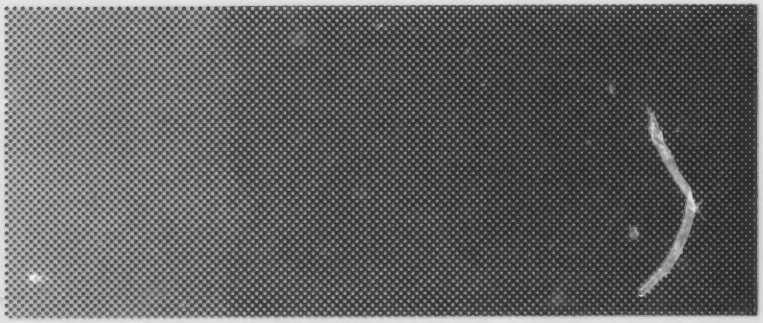
The author of this contribution is the Begum Ra'ana Liaquat Ali Khan from Pakistan.

I am very happy, indeed, to have this opportunity of renewing my contacts with Holland again, in spirit, if not in person, for I do, most sincerely, have the greatest respect and affection for Her Majesty Queen Juliana of the Netherlands, and her people. Hence, once the diplomatic formalities of my position as Pakistan's first woman Ambassador to the Hague (1954 to 1961) were fulfilled, I lost no time in making it known that my interest was in getting to meet and to know, personally, as much as I could of the country and the people themselves, in all areas, big and small: and I am sincerely grateful to the Dutch authorities everywhere who assisted me in making my programme not only so enjoyable, but also meaningful as well.

The current effort in the Netherlands of offering educational development and assistance to candidates from developing countries, through a system of some sixty international post-graduate courses, conducted in English, for academics with a few years of practical experience, is an excellent one, which I sincerely hope will be made full use of by our students from Pakistan, as well as those from other countries. These courses are financed by the Ministry of Development Co-operation, which also makes annual offers of some eleven-hundred fellowships covering tuition, full board and lodging, as well as travel expenses. This is, indeed, a very generous and valuable investment in human resources; the more so as they are especially geared to the

needs of developing countries, and mid-career people from many nations, who thus get the opportunity of working, and exchanging professional, social and political experiences which contribute very greatly towards the building up of a better understanding of each other's social and working needs, problems and attitudes, at all levels of just plain human fellowship. I agree entirely that this is the best possible method of building desirable human bridges, and breaking down the barriers of old worn-out prejudices which serve only to hamper good and necessary human contacts and progress.
In setting up international courses great care has been wisely taken to offer only the programmes in which the Netherlands are, beyond any doubt, among the leaders through years of specialised, first-hand studies and training, in such fields as Agriculture, Hydraulic Engineering, Aerial Surveys and Earth Sciences. No less important is the effort of the Netherlands Universities Foundation for International Co-operation to create a congenial atmosphere for the families of post-graduate students through the efforts of the International Neighbour Groups, where Dutch ladies assist the participants' wives and children in making their stay in the Netherlands useful and pleasant. This, to my mind, demonstrates great understanding of the problems that families of participants are faced with in foreign countries. Such assistance given on a voluntary basis cannot but contribute to the creation of a happy atmosphere in which participants can pursue their courses of study unhampered by worries regarding their families arising from the inevitable need for adjustment in an unfamiliar cultural milieu.



The course was evidently broa and also extremely intensive

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Mr J. Osei Hwedieh attended the 5th International Course in European Integration during the 1970/71 academic year.

I attended the 5th International Course in European Integration at the Institute during the 1970–71 academic year on a scholarship of the Dutch Government. I was the second official of the Ghana Foreign Service to participate in the course.

The total number of participants in 1970 was some thirty graduate students in economics, politics or law, drawn from Western Europe including the United Kingdom and Ireland, Eastern Europe, USA, Latin America, Africa, the Middle East, India and the Far East.

Admittedly, this was a wide representation of different cultural and educational background; but far from keeping us within exclusive little groups, this confluence of cultures provided an excellent opportunity for wider contacts, exchange of ideas and friendship—a modest but positive contribution to international understanding.

The programme of study at the Institute was and still is, set out in three main sections: economics, law and political science, each of which was open to the participant depending on the discipline in which he had graduated. As a graduate in political science, I was enrolled in the political science section.

However, before each participant moved into his field of specialty, there was at the beginning a broad compulsory introductory course for the first three months designed to give the student a general background in the disciplines

other than his own. The integration of Europe is an all-embracing process which demands an interplay, among other things, of these principal disciplines. It was only on the basis of satisfactory results in the end of term examinations for this introductory course that the participant was permitted to proceed to the "diploma course" in his selected field of specialty.

In the Political Science Section, we did, among other topics, a survey of theories of political integration, the history of European integration, a survey of political systems of the Member States of the European Community, analysis of the Community's institutions and their functions, the Common Agricultural Policy, and the process of integration.

Trips to European centres

There was also a group research project on national policies of the Member States vis-à-vis the Community in which my British partner and I presented a joint paper on British Policy towards the European Economic Community. Britain was considered then as a would-be member.

In addition, each participant was required to write a paper on a subject of his own choice. The subject had to have a bearing on the Course, and had to be approved by his tutor. Research was conducted under the supervision of the tutor and, in the majority of cases, with the assistance of the experts in the relevant fields. I wrote on the Spatial and Environmental Problems Associated with Economic Progress—a study with special reference to selected urban and industrial regions in the European Community.

The course also covered trips to such important European centres as the EEC Headquarters in Brussels, the European Parliament in Strasbourg the GATT and EFTA Headquarters in Geneva and OECD in Paris. At these centres, lectures were delivered by the experts involved in the various fields, and we were given the opportunity to ask questions or to express opinion on the functions of their institutions or organisations. The visits were an extremely useful complement to the classroom work: they enabled us to relate theory to the actual field practice.

The programme was thus both broad and extremely intensive in accordance with the basic purpose of the course, namely, to provide the participant with a thorough knowledge of the complex problems of European integration. However, in view of the recent momentous developments in the European Community's external relations with Africa, the Caribbean and the Pacific Countries, the Mediterranean States and other parts of the Third World, it might be worthwhile for the Institute to provide more adequate coverage of these aspects in this programme.

Discussing the complexity of the subjects and the required standard of performance on the part of a participant, the then Secretary to the Course once

remarked: "To be honest with you, Gentlemen, in order to succeed in the diploma exams, one would require not only a thorough study of all one's subjects, but also Good Luck!". One had to satisfy the minimum credit-value in each subject (seven in our case), and yet the minimum was not just 50% of the maximum.

That sums up the academic rigour that characterises the course. Naturally, therefore, one feels really very proud to be awarded the Course Diploma at the end of the examinations.

However, having been introduced to many interesting subjects during the Courses the academically ambitious participants—and there were many such in our group— would have very much liked to pursue some of them for a longer period for higher academic degrees at the Institute if there had been a programme and the facilities for this. Such facilities exist in similar Institutes in several European and British Universities. Perhaps the Institute may now give consideration to this type of extension to its programme.

One of the first questions put to me by colleagues when I arrived at the Institute was what benefit I hoped to derive from the course. My reaction then was that knowledge had to be sought for its own sake although its utilitarian considerations were also important.

It is true that it may not be easy to relate one's studies at the Institute, as in the case of many other educational institutions for that matter, to any direct benefit in terms of employment in the academic or professional pursuits; but certainly the course does equip the participant with valuable knowledge about the world's most successful and influential economic community. In a world of increasing economic regionalism and interdependence such knowledge could be put to great advantage in many ways. The course also offers the participant a unique opportunity to improve his knowledge about the peoples of other nations and thus enrich his experience in international life.

The effect on my career

In my particular case, the course has had an important effect on my career as a diplomat. After completion in 1971, I was posted to the Office for the European Economic Community and Commonwealth Affairs in the Ghana Foreign Ministry in Accra where I assumed responsibility as desk officer for all matters relating to these two international organisations. As such I played a major role on the delegation of my Government in Brussels in the recent negotiations between the African, the Caribbean and the Pacific Countries, on the one hand, and the European Economic Community, on the other hand.

I have since been promoted to the grade of Counsellor responsible for my country's relations with the European Economic Community; and from all indications, can hope to remain in this exciting field of multilateral diplomacy.

Working in various parts of the Philips organization

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Mr H.L. Subba Rao – also alumnus of one of the courses of international education in the Netherlands – lives at Madras at present.

I had the good fortune of studying and taking practical training in the Netherlands at Philips International Institute, Eindhoven, on two occasions, in 1962–1963 for a period of one year and for 6 months during 1971–1972. On the earlier occasion, the training was in the fields of electronics, communication and the manufacture of tele-communication equipment.

On the latter occasion, the work done was in the field of Management Information Systems. On both occasions I had the privilege of working in various organisations of the Philips industries which not only helped me in my technical knowledge but also broadened my outlook with reference to the various problems. It gave insight into the method of working in big multinational firms and also into a highly developed (both economically and technologically) society. This experience helped me very much in my professional career.

Trainees from the developing countries in 1960's, when I was there for the first time, had certain problems. The trainees were of 2 types:

- those employed and sponsored by their employers and wishing to have training in the fields in which they have worked;
- those who have just finished their University education and are looking for training for future prospective employment and professional careers.

In the early 60's it was very difficult to assess the trainee's expertise in his

chosen field of training and to evaluate the standard of his University education. Even though various reports and correspondence would have been exchanged, it was very difficult to design the optimum training programme within the limits of time and resources before a trainee began. Evaluation of the trainee, his aims and requirements could be made only after the first few months of the training. Since these training programmes were never more than 12 months, time was always too short.

Even during the training, both the trainee and the authorities need continuously to evaluate each week's progress and suitably amend the future programme so that the training is useful. Trainees who are just out of University do not have any knowledge of the needs of the professional life, or any well defined objectives. They come from their countries with certain ideas which change when they see the technological and sociological advances in the developed countries. During the period of training, they are mostly guided by these ideas rather than by any real insight into the professional career in their country with its own advantages, challenges and limitations. Hence in some cases the training of these persons did not much benefit either the trainee or the country.

Facilities in the developing countries

However, this problem has been overcome in recent years and this I was able to observe when I went again after nearly a decade. This has been possible because of continuous exchange of information between the various institutions and organisations, visits of academics, university administrators and practising scientists and technologists to the developing countries who have met old students at work. The trainees in the developing countries have also been continuously exposed to the new advances that are taking place in the developing countries, methods of training etc., so that they do have better understanding of what is expected of them when they go for training than was the case earlier.

In the earlier days due to the shortage of technical personnel in the developing countries, trainees used to prefer training on a broad spectrum in their field rather than to any specialisation so that they would be able to handle as many jobs as possible on return [illegible]. This was causing some problems in drawing up the training programme. However, this problem no longer arises because of the better availability of technical personnel in developing countries now and also the necessity for specialisation. Broad spectrum training facilities generally exist in most of the developing countries now – certainly in India.

Provided with thorough and up-to-date knowledge

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Ofelia C. Valdecanas from the Philippines makes some notes on the 6th International Course on Food Science and Nutrition.

As I had expected, the 6th International Course on Food Science and Nutrition provided me with thorough and up-to-date knowledge on the sciences of food and nutrition; a prerequisite to the planning, formulation and implementation of a development-oriented national nutrition campaign, in which I share a major responsibility.

The Course appropriately highlighted the multi-disciplinary approach to the solution of national nutrition problems. The inter-disciplinary group, which was well chosen for the various food and nutrition involvements it represented, provided the forum in which common global problems were discussed. For such a course, a less varied grouping might have defeated the purpose of looking at the world's food and nutrition problems from various angles. While the group's heterogeneity in terms of professional interests presented peculiar problems, it offered the big advantage of having the right persons there to give their authoritative view on specific topics.

Combining theoretical and practical work contributed in large measure to achieve the basic goal of the Course. Although some of the lectures might have been though to be of an introductory nature, many were on present-day topics. Nutrimetrics is one topic I found most interesting and open to application in my country.

There was ample chance given to relate classroom work to actual practical

experience. Visits were made to food manufacturing companies, and to government food and nutrition agencies involved in research and education. These also allowed for, and stimulated, an exchange of ideas not only with the government sector but with industry as well.

One of the highlights of the Course to me was the group project. This was an opportunity for each one to pursue special projects of individual interest. The project I worked on has been most useful to me in working out a similar one at the present time.

Practical outworking

I was also fortunate enough to have been given the chance to attend the international seminar of the Society of Applied Anthropologists which was held in Amsterdam at the time. This was very important to me and was a practical outworking of the idea behind the international course, which is to provide all possible opportunities for the participant to make the most not only of the Course itself but also of any chance presented at the time for broadening one's perspectives.

Of interest to note in the Course was the flexibility with which topics and subject matter were arranged. Depending on the suggestions and evaluation of participants, the Course Staff made the necessary revisions which contributed to making it more fruitful than it would have been otherwise.

Finally, I have always regarded such a Course as a forum whereby peoples of the world are thrown into direct face-to-face contact in working out common solutions to common problems in food and nutrition. It was thus an invaluable occasion for me not only to gain a better social and cultural understanding of these people but to become fully and personally acquainted with the host country and its gentle people.

Ever since I came back, I have been looking forward to savouring the Dutch way of life once again!

Training on communication is necessary for using the knowledge effectively

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Mr A Denis N. Fernando is president of the Netherlands Alumni Association of Sri Lanka.

International Education in the Netherlands has been directed mainly towards the Third World intelligentsia, so as to equip them as far as possible with knowledge that would be of direct application. Even in the choice of scholars, the principle has been to select those who are already engaged in a speciality. The intention has been to ensure that the scholars will on their return resume their speciality with much greater competence, adapted to their local situations with the least loss of time. Sometimes it is exasperating for these scholars to transfer their new knowledge however relevant it may be due to the conservation and ingrained habits of older and more serious officers under whom these scholars are called upon to work.

Unless these scholars are determined and show exceptional leadership qualities, their training and knowledge is not fully used. It is true that in Sri Lanka's situation over 50% of the scholars who have followed international courses in the Netherlands have been able to use their knowledge effectively, because the principle of selecting those who already are "on the way" has been generally followed. Further the higher standards of education and the capacity for absorbing new ideas makes it easier for these trained scholars to transmit their knowledge. Nevertheless I believe that the scholars from developing countries could be made more effective in their local situations if in addition to their usual courses they undergo a short training programme or

orientation in communication and leadership.
Training programmes in the Netherlands could best be kept as short as possible. Methodology and techniques of a fundamental nature could be taught in a "core course" which would be the first part of the course and would be held in the Netherlands, where facilities and expertise can be drawn from different institutions. Even in this part of the course, the approach could well draw much more on the experts of developing countries.
This core course should be followed by further training and field work in a developing country, having similar socio-techno-economic problems. There should also be the possibility of moving this second part of the course from one country to another in the same region. The purpose being to expose both student and teacher to the problems of the developing countries of a particular region, while at the same time they make a positive contribution towards solving development problems in these countries. If study is a serious problem, the service of outstanding Alumni in the region could be drawn in to supplement the staff.
This approach could also help to reduce "brain drain" in developing countries as those trained would have the experience of solving problems within the region and any "brain drain" would tend to be contained within the region.
Since knowledge is always growing at an explosive rate, it is necessary that the Alumni's competence should be strengthened from time to time. It would be worthwhile conducting short term refresher courses in the form of roving seminars for Alumni who completed their international courses over 10 years ago. Such a programme would serve the dual purpose of exposing them to new knowledge and drawing on their experience.
The Alumni from developing countries are at a great disadvantage in their attempt to update theis knowledge because of the acute foreign exchange problems that face their governments. Moreover the remuneration for top advisors and executives is very low compared to their counterparts in developed countries. It is not possible for Alumni, however self sacrificing they might be, to draw on their meagre salaries to buy foreign books and journals. It will be a shock to our colleagues and counterparts in developed countries to know that the price of a book printed in a developed country is the equivalent of one to two days salary for a fully qualified scientist in a developing country. It is therefore a positive investment or an "after sales service" to update the knowledge of the Alumni by issuing relevant journals free of cost.
My suggestions here are intended to ensure that the human factor in development, which after all is the key to the whole exercise, is not ignored.

Four participants of courses of IHE talk about living at Delft and Dutch hospitality

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One woman and three men. From countries thousands of kilometres apart; countries which lie in different continents, even. All four are participating in international education. And at the point that this conversation takes place nearly a whole year of extremely intensive study in the Netherlands is behind them. Mrs Sema Serinken from Turkey. Antonio J Paz Grau from Colombia. Garry David Tong from Australia. Krishnavely Omprakash from India. Each of them had already completed a university education in their own country. All four found they needed to supplement the knowledge they had acquired. Which brought them to an establishment of International Education in the Netherlands. The nature of their particular specialisations meant that for them it was the International Institute for Hydraulic and Environmental Engineering in Delft. For many others it is another of the seventeen institutes and courses.

So they are here together, round a table; a point in the centre of the ancient town of Delft. In one of the many buildings for scientific education to be found there.

Mrs Sema Serinken is from Turkey's capital, Ankara. One of her places of study had been the English language Middle East Technical University in that same city – an establishment catering for students from all over the Middle East. She did environmental engineering there. Like her, her husband is also an engineer, and because he has work in Turkey she came to Holland on her own.

Krishnavelu Omprakash studied civil engineering at the University of Madras, the city in which he was born in 1949. He lives in Bangalore now, working on a planning and development project for ports along the Indian coast. He considered the knowledge he could acquire in the Netherlands to be important for this project.

Antonio J Paz Grau came to Holland together with his wife, Olga. He studied civil engineering at Las Andes University in the Colombian capital, Bogotá, after which he worked on a number of projects in his country – all aimed at remedying the inadequate state of their water supply system. He told us that seventy per cent of the towns in Colombia still have no piped water.

Garry David Tong has chiefly been occupied with studying ways to predict the

behaviour of water in natural channels. He had wondered, for example, what exactly would happen if the dam of a reservoir burst and caused a flood wave in the valley below it. He gained a general degree in pure and applied mathematics, physics and statistics at Melbourne University. Garry is also accompanied by his wife here in Holland.

Passing on Knowledge

The subject of conversation is the courses which the four of them have

From left to right: Garry David Tong, Henk Ossewaarde (author of this interview), Krishnavelu Omprakash and Antonio J. Paz Grau.

followed. "I feel that the course has been important not only for myself", says Krishnavelu Omprakash. "I can pass on the knowledge I've picked up to other people in my own country. The problems I'm helping to deal with in India are very much connected with the things we've been doing here in Delft. Some of the solutions cannot be applied straightaway perhaps, owing to the fact that they require large and expensive machines which are not immediately on hand. But we have much manpower available in India and this can compensate for the lack of large tools". Garry, the Australian, adds, "I also hope that this course will have helped me to be able to follow the scientific developments in the area I've specialised in. I came to Delft with high hopes and expectations because the technical university here really does have an excellent

reputation – and my expectations have not been unfulfilled. I know what I'm saying because technology has reached a pretty high level in Australia already". Tong mentions the fact that study under Dutch International Education is of a very concentrated form – but that in this way, in the relatively short time of twelve months (as his course is), all the more information can be transmitted. He says, "I shall be able to be of use back in Australia not just to young scientists but also to people who have already been at work for longer than I but have not yet had access to the material treated here".

One Nationality is Missing

"Holland is a pleasant country to be in", says Omprakash kindly, when the topic of conversation turns to the experience of living here for a year. He goes on, "I think I've found it to be so mainly because there is no real language problem. Everyone speaks at least a little bit of English – even people you come across in the street or the assistants when you do your shopping. This is a very important thing for someone coming alone from another country to stay for a good length of time. For instance, I got hold of information about studying in France. It was only going to be possible if you spoke French – for a start because they don't have any English-medium courses for foreigners there". The other course members agree with him. There is much discussion about the experience of people who stay for some time as aliens in the Netherlands, centring on the question of whether one has sufficient opportunity to really learn to know the Dutch people during such a concentrated period of study. The general conclusion is that unfortunately one hasn't.
Mrs Serinken explains. "People are here in Holland following the international education courses from all sorts of countries and far from their own borders. But there's one nationality missing among them: the Dutch. They are studying in the framework of their own education system which means one seldom comes in contact with them. On top of that the programme of study is a very heavy one; it leaves little time over for making social contacts. The Dutch people who you do come in contact with are mainly from the circle of lecturers and assistant staff of the courses. I should have enjoyed being able to find Dutch friends who were not part of International Education but there have been too few opportunities for that – it's a pity.

Dutch Hospitality

There are also differences between the ways in which social contact is made in Dutch society, and the ways it is done in the countries from which the participants in international education come. "If someone new comes to live next door to you in India, one of the very first things you do is to ask them to come round for a chat", Krishnavelu Omprakash says. "And in Turkey", says Mrs Serinken, "Nearly everyone is busy at the weekends visiting or receiving

visitors". It was very noticeable to her how quiet a town such as Delft can be at weekends. The Dutch spend their non-working life in their own homes. Nevertheless the four course members being spoken to have found the self-same home-bound Dutch person to be hospitable; they have seen how the Dutch do appreciate meeting foreigners. Antonio Paz Grau puts the thoughts of the four of them into words. "A Dutch person is someone who is likely to be very hospitable yet it takes a lot of time to get to know them well at home in their own surroundings. And we course members don't have so much time

Behind the table: from left to right: Krishnavelu Omprakash, Antonio J. Paz Grau and Mrs Sema Serinken.

available, with our heavy programme of work". He adds, "Anyone with a Dutch person for a friend has a really good friend. One who's dependable, straightforward and conscientious. As I told you, my wife has come with me to Holland. What I'm saying is based on her experience—I've so far not been in a position to encounter it myself".

There is some discussion over whether it would be nicer if foreign persons from abroad were to study within the existing Dutch system of education—together, that is, with Dutch students. The idea is rejected, though, because apart from many other problems there is a great difference between students of higher education here, and international education students. Dutch persons who are gaining higher education in their own country are at a very early

stage in their scientific career. Participants in International Education are already some way in their career and are thus generally a good deal older. Another possibility is to set up courses such as are given in the Netherlands, in the countries from which the members of the courses come, which is indeed happening in a few cases. The participants engaged in this discussion feel it to be neither possible nor desirable to do that for all the courses. "Many countries would be faced with organisational and financial problems if they wanted to set up such a course", says Paz Grau. And Garry Tong adds, "In a number of fields the Netherlands possesses knowhow which many other countries don't have. The reason for this is more than merely the fact that Holland is a developed country and the others are less developed". Mrs Serinken expresses her opinion that, "You can't set up courses like this in every country. So that means that a certain proportion of the members of any course will have to leave their own country to pursue these studies. And everything else apart, this can also lead to problems of a political nature. I'll go further and say that in my opinion it's important for people from less developed countries to follow courses like this precisely in the developed countries. Despite the hard study you do in fact to know the country, contacts are made with scientists there and with other course members—meeting people from all over, in fact. I find that so important".

The Nature of Aid

Obviously, in a conversation such as this, the subject comes up of the global framework within which the Netherlands has set up International Education: aid from rich developed countries to poorer and less developed ones. Serious discussion goes on for some time. Garry Tong finally says, "Perhaps just because I do come from a developed country I might tell you how I see it. I'd like to be able to include something about Dutch assistance to the Third World in what I say, but I've not been able to become sufficiently informed on it to do so—so my remark will be a general one. I hope that the Third World will progress, and I hope that the countries which can will help in the development. But I would think it a great pity if the countries of the Third World were to lose their engaging way of living and working, by doing so. They ought not to try to be a reproduction of the rich countries and their way of living and working. I feel that development aid should be directed towards assisting the solving of problems. If development aid is used as a means to earn something, or to accrue political or economic influence, then it is not real aid.
The others nod in agreement. And Antonio Paz Grau makes this statement: "Whoever gives help to a less developed country in the proper way must not expect anything in return—except to know that, because of the aid, the receiver is able to help themself in the long run".

Six participants of ITC-courses, just started with international education in the Netherlands

Generally they are between 22 and 35 years old, the latter group usually being married. Their passport states that they are Indonesian or Mexican, or that they come from Swaziland or Lesotho. They heard about the existence of international education in the Netherlands because somebody working in their area had already finished a course there, or because one of their lecturers had told them about this possibility during their studies in their own country, or because they came into contact with a Dutch teaching project in their own country. They have one thing in common—they all came to the Netherlands to study.

Six of them have another thing in common: they came to study at the International Institute for Aerial Survey and Earth Sciences (ITC), and at the time that these lines were written, they had just started. We had an interview with them and asked them the reason for their study in the Netherlands and the significance of the ITC courses for their work. However, we shall first introduce you to the six participants.

Introduction

A. Ahmad: Age 28, wife and child at home in Brunei. Employed as cartographer by a survey department, and at the time of the interview only recently arrived for the Cartographic Technician's course (C.4) beginning February 1977. Financed by own government.

J. Cordova: Age 33, single, Mexican. Experience as photogrammetrist with Comision de Estudios del Territorio Nacional (CETENAL), a new, very large and rapidly expanding mapping organisation in Mexico. Arrived at same time as A. Ahmad for the Cartographic Technologist's course. Financed partly by CETENAL, partly from own resources.

M. Dlamini: Age 22, single, from Swaziland. Holds diploma in agriculture from the University of Botswana, Lesotho and Swaziland (note: the Lesotho faculties have since 'gone independent'). Practical experience as a laboratory assistant in the University. Following the Standard Course in Rural Surveys (N.9.2) which began in August 1976. Social convener of the ITC Student Association. Financed by the Dutch government as part of a project of aid to UBLS.

S. Hardjo Prajitno: Age 35, wife and child at home in Indonesia. Studied and

then became assistant lecturer at Bogor Agricultural University, in the Faculty of Forestry. In 1975, attended the Forest Survey course (N.8.2), and of the 17 Indonesians who attended that course, was one of the two accepted to return to ITC in June 1976 for the Advanced Course (N.8.3), possibly leading to the degree of M.Sc. As part of his studies, following the Post Graduate course in Cartography (C.2). Financed by the Dutch government until June 1977, thereafter by the Indonesian Forestry Directorate.
K.M. Mooney: Age 22, single, Irish. Having obtained a Diploma in Survey

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A. Ahmad

J. Cordova

M. Dlamini

at the College of Technology in Dublin, proceeded directly to ITC for the Photogrammetric Technologist's course (P.5) beginning August 1976. Financed by the Dutch government, Department of Education and Science.
M. NKhahle: Age 24, single, from Lesotho. Having obtained a B.A. in English and Geography from UBLS (see M. Dlamini's data), arrived at ITC in September 1975, and first completed the Geographical Landscape Analysis course (N.4.1) followed by the Standard Course in Urban Surveys (U.S.1). Now following the Advanced Course (U.S. 2) in that department, possibly leading to the degree of M.Sc. in September 1977 or a little later. Financed by the same source as M. Dlamini.

We asked why they came to ITC.

A. Ahmad: "In 1969–70 I did a 10 month draughtman's course at the Directorate of Overseas Surveys, London. Since 1971 we have been producing our own maps in Brunei, and we began map printing in 1976. We need to know more about the latest techniques, and during the Helsinki Conference of ISP in 1976, my boss (who is a surveyor) learned about the activities of ITC. On his return to Brunei he asked me as chief cartographer if I would like to attend the C.4 course at ITC, and he also sent a colleague for one of the photogrammetric courses, with the idea of setting up a photogrammetric

section in Brunei".
J. Cordova: "CETENAL was set up by photogrammetrists and surveyors in 1968, and now has about 1600 people on the staff. We produce mainly topographic maps, but are now beginning to produce cadastral and thematic maps. Some of the senior staff have received training in photogrammetry in Canada, USA, and at ITC, and a draughtsman's course is available in Panama.
One colleague gained the C.2 Diploma at ITC in January 1976, but we need more cartographers. Also, I wanted to expand my own knowledge beyond my

S. Hardjo Prajitno

M. NKhahle

K.M. Mooney

statistical and photogrammetric background, so CETENAL chose to send me to ITC. No other suitable course seemed available, and the ITC training is suited to our work."
M. Dlamini: "I was accepted for the ITC course, and for degree courses in Australia, and at Reading, England. I could also have studied for a degree at home, but the course is too similar to the Diploma course I have done there. The ITC course gives me a good opportunity to work with air photos, but I still intend to try to obtain a University degree elsewhere."
S. Hardjo Prajitno: "An Indonesian forester had attended an ITC course in 1952. Numbers have grown, and in 1974 a five year project was begun to train 100 Indonesian foresters – 20 each year. These trained persons will be able to educate others in Indonesia, assisted by ITC personnel. I took part in the 1975 course, and have now returned for the Advanced Course. Since, on my return home, I will assist in the national forest mapping programme as well as teach, the C.2 course will be a major part of my further ITC studies."
K.M. Mooney: "At college I developed an interest in photogrammetry, and I found out about ITC from a lecturer. There is no advanced photogrammetric training in Ireland, and nearly all our photogrammetric surveys are carried out by British commercial firms. I hope that in the long run an Irish

company will form, and that the use of photogrammetry by the Advanced Survey of Ireland will increase. As far as I am concerned, ITC is still the premier place in the world to study photogrammetry, and I did not apply anywhere else."
M.NKhahle: "I found out about ITC from the NUFFIC project in Lesotho. The eventual aim is for the natural resource survey team there to be self-supporting. I was sent to ITC as part of the project, and have since specialised in urban surveys. I could have applied to Universities such as Calgary, Reading and Cornell, but all that time I did not know about the courses there. Even if I had, I might still have come to ITC."

What has been your experience of ITC, Enschede, and the Netherlands?
J. Cordova: My colleagues told me to expect a year of hard study, and I am looking forward to learning a lot. I appreciate the efforts of the staff to make us feel at home, and I have found the people of Enschede friendly and helpful. Good personal relationships help in study, and although my course has just started, the students are already beginning to get to know each other."
M. Dlamini: "The winter weather in Holland is depressing, but the atmosphere in ITC is fantastic. The student accommodation is very good, but expensive. Although the food is good it is nice to be able to cook for yourself when you want to. This is my first trip abroad, but some friends had been to ITC, so I knew a little what to expect. Outside ITC, I have got to know quite a few Dutch people and I find very few problems, apart from the cold ! "
S. Hardjo Prajitno: "Before I first came to ITC in 1975, some Dutch staff members at my University told me a little about Holland. I like the kindness of the ITC staff and their readiness to help students. In my University the attitude is more formal and the staff not so easy to approach. Schermerhorn Hall is better than the student accommodation in my University. Of course I am homesick sometimes, and for that reason I do not spend all my spare time with Indonesians, but have made friends with students of all nationalities. Holland is much more developed than Indonesia, but I think the people at home are friendlier to strangers and are more neighbourly. After a long period here I am used to the climate."

What is your opinion of your course and is it suitable to your work and to your country's needs ?
M. Dlamini: "The Rural Surveys course is very new (begun 1973), and is still settling down. I find some parts very difficult and other parts very easy and general, but I suppose it is a big problem to organise a course for people of very different backgrounds, nearly all of them graduates, unlike me. Some of the subjects I find difficult the others find easy, and vice versa. Unfortunately it is not possible for me to specialise in my particular topics, which are land

evaluation and land use planning. Some of the teachers are still inexperienced, and I am not sure how readily my Diploma will be received, but no doubt these difficulties were faced in the early years of all the ITC courses."
S. Hardjo Prajitno: "I hardly had time to apply the knowledge I gained in 1975 before I was on my way back again to Enschede. I think that the special training project proves that the Forestry Courses are useful to my country, and with the cartographic knowledge I hope to gain, I should be able to help push forward the forest mapping programme there. One problem will be,

Schermerhorn Hall, where ITC-participants live.

however, that in Indonesia we are not so well equipped as ITC, so I may not be able to apply all the techniques I will have learned."
M. NKhahla: " I have an academic background and I find the courses at ITC very technical. However, with such a wide range of student backgrounds, I think it was the best decision to concentrate, in the Rural and Urban Surveys Courses, on data collection from air photos. The thesis I am writing applies these techniques to a geographical problem in our capital city, Maseru. I hope, when I return, to be appointed as an assistant lecturer in the Geography Department of the University there."

Centro Interamericano de Fotointerpretation at Bogota

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At the beginning of 1965 the Geographic Institute "Agustín Codazzi" and the Universidad Nacional in Colombia proposed a project to the Dutch Government for the establishment of a centre for training in photo interpretation and photogrammetry in co-operation with the International Institute for Aerial Survey and Earth Sciences (ITC), then situated in Delft. After two years of preparation, this proposal has resulted in the establishment of the "Centro Interamericano de Fotointerpretación" (CIAF) as an organ of the Colombian Government.

Five sectors participate in this institute: the Ministry of Public Works, the Instituto Geográfico "Agustín Codazzi", the Instituto Colombiano de la Reforma Agraria and the Instituto Nacional de Investigaciones Geológico-Mineras. It was agreed that during the first years, ITC in the Netherlands would be partly responsible for the technical side till Colombian personnel could take over this task.

Official start in April 1968

The CIAF started unofficially in 1967 with a course in pedologic photo interpretation for agronomists of the Geographic Institute. In April 1968 the centre began to function officially, technical and administrative staff were appointed and Dutch experts of the ITC started work. The most important functions of the CIAF are:

- providing post-graduate courses in photo interpretation;
- carrying out research in the area of photo interpretation and related fields;
- providing general courses for anyone who in connection with his work requires a basic knowledge of photo interpretation;
- providing advice in the area of photo interpretation and related areas.

Tuition

Since 1968 the Centre has provided specialised training for students from nearly all South American countries, in the form of set courses of eight months and special courses of 4–8 weeks (the latter especially for Colombians). The table on the next page gives a review of the period 1968–1976.

Country	Grants	Pedology	Forestry	Geology	Road constr. and hydraulic engineering	Total
Argentina	21	1	5	15	1	22
Bolivia	21	4	6	11	-	21
Brazil	15	8	1	14	-	23
Chile	3	3	-	2	1	6
Colombia	36	56	32	17	18	123
Costa Rica	-	1	-	-	-	1
Cuba	-	1	-	-	-	1
Ecuador	15	7	4	3	2	16
El Salvador	7	5	-	1	1	7
United States	-	-	-	1	-	1
Guatemala	2	-	-	-	2	2
Haiti	1	1	-	-	-	1
Honduras	3	1	-	-	2	3
Mexico	15	-	4	9	3	16
Nicaragua	5	3	-	-	2	5
Panama	1	2	-	-	-	2
Paraguay	1	-	2	1	-	3
Peru	9	5	1	4	1	11
Dominican Rep.	4	6	-	-	-	6
Uruguay	-	-	-	-	2	2
Venezuela	3	15	3	6	1	25
Total	162	119	58	84	36	297

In the following table a review is given of the increase in the number of applications for enrollment in the set courses.

Year	Applications for enrollment	Enrolled	Grants
Total	534	300	166

In addition to the set courses mentioned, the CIAF has organised special courses for 848 persons (721 Colombians and 127 from other countries):

Geology	54
Forestry	50
Photo interpretation (cadastral aspects)	369
Road construction and hydraulic engineering	148
"Remote sensing"	124
Elementary photogrammetry	103

The CIAF has shown great activity in this area, if account is taken of the number of experts at its disposal and the heavy demands made on them for teaching. Research is carried out in many fields, a few of which are mentioned below:

- pedology
  study of the salt content of the soil in the project Atlántico Sur de Incora by means of infra-red, colour and multi-spectral photography; study of the use of radar pictures in the classification of soil in the north of the Valle

A new building of CIAF under construction

  del Cauca; study of soil (usage) and cultivation of three areas in the Llanos Orientales by means of satellites (contributed to NASA)
- forestry research
  research as to the use of radar in the processing of maps and forestry surveys; development of a computer programme for forestry surveys;
- floods and water pollution
  study of the pollution of the Bay of Cartagena by means of multi-spectral photography; research into the use of radar pictures from satellites and of conventional photos in the determination of the nature of floods in the area of the Magdalena Medio;
- Application of photogrammetry in road construction and hydraulic engineering (also in planning new roads).

The CIAF has given advice to and done research for national authorities and for organisations in other countries in order to demonstrate the value of new techniques and to contribute to studies of development projects. This form

of assistance is done at cost price and up to the present already covers fifteen studies or projects of various types.
Publications consist both of basic texts for the various courses and articles on various topics which have been the subject of the CIAF study (project). These include 44 publications on pedology, 43 on forestry, 12 in the area of photogrammetry, 10 on "remote sensing", 24 on geology, 9 on the application of photo-interpretation in road construction and hydraulic engineering.

Personnel

Since the founding of the institute the Dutch staff has consisted of seven persons, namely a geologist-geomorphologist, two geologists, one edaphologist, one agronomist, one forestry engineer and a photogrammetric engineer. The Colombian staff consists of three civil engineers (photogrammetry), three geologists, one geologist-geomorphologist, five edaphologists, and three forestry engineers.
The budget, which was $32,600 in 1968, ran to nearly $400,000 in 1976. At the moment a building for the CIAF worth $350,000 is under construction. These funds, which are provided by the Colombian government, are supplemented by amounts which are made available via ITC. In 1968 this contribution was Dfl. 615,000, and amounted to Dfl. 763,000 in 1976.

Bouwcentrum International Education at Indonesia

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In 1955, 2 years after its inauguration the Directorate of Building Research (DBR) was assigned the task also to function as the United Nations Regional Housing Centre (RHC) catering to the interests of countries within the hot humid areas of the ESCAP region. DBR/RHC is a research unit of the Directorate General of Housing, Building and Urban Development of the Ministry of Public Works and Electric Power.

Since 1970 various activities have been developed between BIE and DBR/RHC mainly focussing on the improvement of the exchange of knowledge, insight and experience.

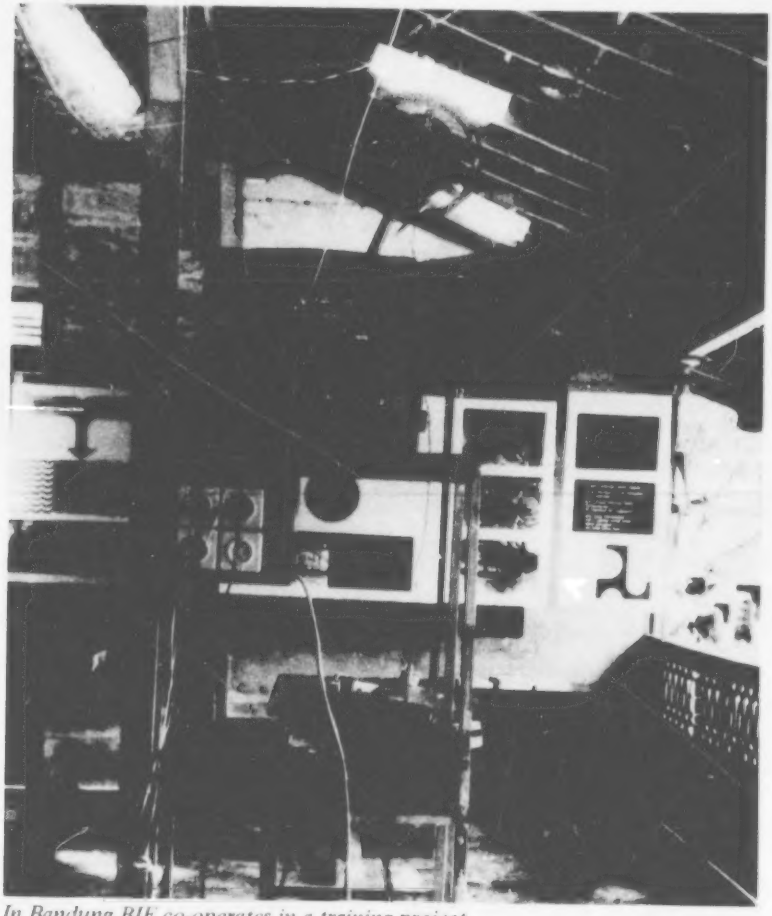
- DBR/RHC staff trained as documentalist and librarian in Bouwcentrum, Rotterdam.
- Special courses organised where DBR/RHC staff translated the Netherlands Development Cycle theory into the Indonesian (Bandung) context.
- Assistance given in adding to DBR/RHC the function of an intra-regional Building Information Centre.
- In February 1976, BIE assisted the DBR/RHC in organising the UNESCO/UNEP sponsored regional training seminar on Management of Human Settlements.

Present co-operation

During the period of the Second Five Year National Development Plan, 1974/1975–1978/1979, the Indonesian Government plans to construct 90,000 new dwelling units and to provide land and services for an additional 225,000 units through a site-services programme in the urban areas. Of this total a target has been set for the Government, through the National Urban Development Corporation (PERUMNAS), to provide 50,000 site-and-service plots and 20,000 low-cost dwelling units, leaving the remainder to be provided by a national corporation for housing, the private sector, and the non-profit housing organisations.

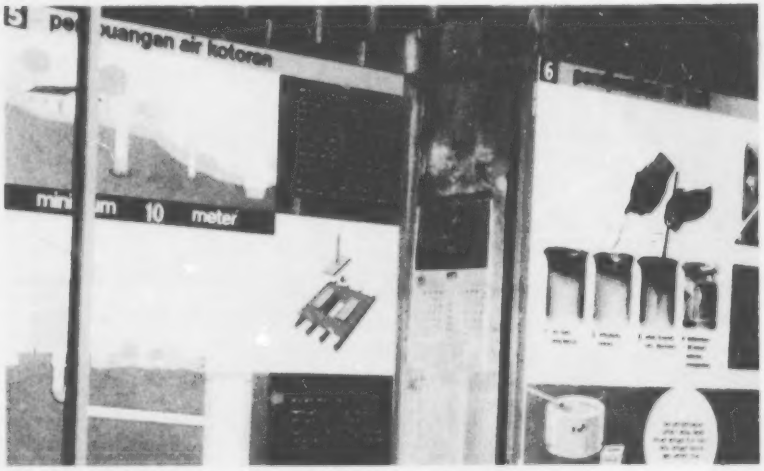
The scope and regionally decentralised nature of the planned investment in housing and related infrastructure, and the present condition of the housing delivery system, are expected to create a growing shortage of several kinds of manpower needed for implementing the plan fully. There has recently been

substantial expansion of all kinds of construction. Due to this, several bottlenecks are beginning to appear – in manpower available as managers of housing programmes in all cities of Indonesia's 27 provinces, as managers specialised in working with kampung (low income residential slums of cities) improvement projects, co-operatives, site-and-services projects, land management, the supply of building materials, and other specialised aspects of housing programmes, and in personnel for policy research related to needed innovations for increasing the supplies of finance, land, and materials for housing



In Bandung BIE co-operates in a training project.

programmes.
A training project for managers of housing development programmes has been proposed as a co-operative undertaking of the DBR/RHC, the Institute of Technology in Bandung (ITB) and BIE. The proposed training project is intended to gradually eliminate such bottlenecks in the housing delivery system in the urban areas, particularly those parts of the systems operating in cities of intermediate size and for the lower income segment of the population.



Panels with information about housing, planning, etc.

The project in Indonesia will establish courses to train people involved in the local and regional housing programmes, especially managers of local programmes. These managers fall into two groups. The first are managers involved in local policy decisions—choosing target groups, selecting specific kinds of housing investments, arranging land acquisition and financing, and so on. The second are managers for more specific tasks—organisation of co-operatives, site planning, co-ordinating supplies of local building materials, and so on.
To reach these managers at the local levels, part of the courses will eventually have to be given in the Indonesian language. During the first part of the project, however, courses will be in English and will focus on training upper-middle-level governmental employees involved in the Indonesian Housing Plan. These people will then provide a pool of practitioner-instructors for the courses in Bahasa Indonesia. Some of the courses will focus on the Indonesian problems. Some of the courses will have a more regional character and will be open for participants from other ESCAP countries.

The many tasks of NUFFIC, the Netherlands University Foundation for International Co-operation

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On January 11th 1952, the Dutch universities set up a foundation to be the central body for international university co-operation, as given particularly for the needs of the developing countries. Beginning with the organisation of international courses for post-graduates from the Third World, the Netherlands Universities Foundation for International Co-operation has gronw through the last twenty-five years into an organisation which lends its services to many activities of international university co-operation.

NUFFIC's existence arose out of the conviction that scientific education and research in our country have a clear part to play in the general endeavour to effect international co-operation. In order to be more easily known abroad, the abbreviation NUFFIC of the English title: Netherlands Universities Foundation for International Co-operation has always been used.

International Education

Through the past 25 years NUFFIC's activities have grown in scope and number. The first act was to set up the Institute of Social Studies, which would offer further specialised study in the field of Socicl Science to foreign persons—particularly from the Third World—who have already completed university training. When—partly for the sake of relieving the NUFFIC apparatus—ISS became a separate entity with its own statutes in 1956, it was possible to take further initiatives in organising a series of international courses given in one of the modern languages. Together with the Delft University of Technology, NUFFIC became responsible for courses in, among other things, hydraulic and environmental engineering. Many hundreds of persons have followed these courses since 1957. NUFFIC then also took a further part in building up a system of supplementary educational assistance which is nowadays termed 'International Education' in the Netherlands. In co-operation with the European Institute of the University of Amsterdam, NUFFIC organises courses on the subject of European integration. In consultation with NUFFIC, institutes for tropical medicine in Antwerp, Amsterdam, Leiden and Rotterdam and the Belgian General Council for Development Co-operation (ABOS) hold courses in health development, while nutrition is dealt with in co-operation with the universities of Ghent, Louvain and

Utrecht, the Agricultural University of Wageningen and ABOS. NUFFIC also organises a summer course in industrialisation. The Research Institute for Management Science (RVB) in Delft and the Bouwcentrum International Education (BIE) in Rotterdam get their subsidy through the NUFFIC-budget. Altogether, some 1,400 foreign persons each year enjoy specialised supplementary training (mostly of an academic nature) through the agency of International Education (IE), which now comprises all the institutes and courses as described in this book. NUFFIC is involved in all the establishments

"Noordeinde Palace", at The Hague, the home of NUFFIC (and ISS) up to and including August 1977.

conducting these, as a co-ordinating body.
In May 1976 a new structure was brought into force by the Government for consultation regarding educational co-operation. NUFFIC has been designated to provide the organisational set-up and the secretariats which this involves. The new structure – which has been instituted by the Ministers concerned – entails consultation at three levels between official and non-official experts to prepare advice for the Ministers with respect to the whole area of educational co-operation with developing countries.
Those who wish to receive up-to-date information about the international courses, can always write to NUFFIC for the brochure 'Basic Data on Inter-

national Courses offered in the Netherlands'.
In 1962 a first effort was put in motion, to interest the university community in the development problems of the Third World. Series of lectures on the topic of development problems were given at various universities and much interest was shown in these. At the beginning of the seventies the universities took over the organisation of these courses themselves – a telling illustration of the piloting function of NUFFIC. Pressure then began to come from many sides – including through the reports of NUFFIC committees – for a university development programme and in 1969 funds were made available by the development co-operation minister at that time, for university education and research that should be undertaken for the needs of the developing countries. NUFFIC was asked to take on the job of co-ordinating this Programme for University Projects of Development Co-operation (PUO). Being part with the Dutch programme of development co-operation, PUO has put 70 projects into operation – accounting for more than Dfl. 28 million – since its inception.
Apart from IE and PUO, the multitude of work done by NUFFIC in the study assessment field must not go unmentioned. Pre-university schooling of hundreds of foreigners who study at universities here is gone into by NUFFIC in order to ascertain the level attained and the appropriateness for fitting into Dutch scientific education. Every year NUFFIC gives written advice in about 1200 cases to ministries, universities and other institutes concerning foreign degrees, diplomas and certificates of students. A national information

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NUFFIC is by no means always directly involved in the actual execution of the work it concerns itself with. The services it gives are primarily of a directive, co-ordinating, supervisory and policy-forming nature. As well as the universities, the institutes and courses of International Education are also represented on the Board of Governors – together with persons who speak for the personnel. The NUFFIC staff in The Hague numbers about 60 people.
The instigation of an Executive Committee, consisting of 6 persons, has greatly helped NUFFIC's operations.
The Minister for Education and Science has responsibility for NUFFIC; its subsidy comes from Development Co-operation.

centre regarding equivalents and mobility within Western Europe is being set up. NUFFIC has a documentation centre for dealing with all these matters. Through this centre it is possible for NUFFIC to provide interested parties with information concerning academic institutions and training courses in the whole world. In 1977 NUFFIC expects to be able to set up a documentation unit for research which is relevant for development.
In co-operation with the universities' Offices of International Relations, NUFFIC publishes the monthly periodical 'OVERZICHT' (a Dutch language review of events in the field of international university co-operation) for interested parties in university circles. For readers in other countries it publishes a quarterly bulletin which appears in English and Spanish. The English name is 'Higher Education and Research in the Netherlands'.
The Centre for the Study of Education in Changing Societies (CESO) which is closely associated with NUFFIC, is occupied with research, tuition and documentation regarding education in developing countries, and in this framework also evaluates international courses! The Institute for Social Research in Developing Countries (IMWOO) which also falls under NUFFIC, is a documentation, information and co-operation centre in the area of social research in developing countries.
Lastly there is a language laboratory which has been set up to give participants in international education the opportunity to enlarge their knowledge of English. Outsiders may also make use of the language laboratory, courses being given in Dutch and French as well as English.

More information

It is impossible to go deeply into the various subjects of NUFFIC's work in a short space. Those who would like to have more information about NUFFIC's achievements through the last twenty-five years, and the activities being undertaken in the immediate future, should contact the Information Division NUFFIC, Molenstraat 27, The Hague. Tel.: (070) 63 05 50, extension 239.

ITC: International Institute for Aerial Survey and Earth Sciences at Enschede.

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The idea of education being a non-recurrent, juvenile activity has gradually been abandoned; with the ever-increasing pace of advancement in all fields of learning, the working-life of our knowledge has been shortened drastically, making education a permanent necessity. This is even more true for the Third World, where a rapid development process requires a continuous flow of new information. An essential part of this information refers to changes in the natural and human environment, which require a constant adjustment and renewal of existing data. There is an urgent need, then, for appropriate methods of systematic data collection, providing reliable information in an efficient and effective way.

Such an information system must be of a dynamic nature; it should be closely connected with the process of change in the developing countries and at the same time be adapted to the different needs of clients from these countries who wish to participate in post-academic or mid-career training. This is the type of recurrent education offered by ITC in the field of aerial survey and other applications of teledetection, which are indispensable elements of an environmental information system.

Appropriate technology

It may be asked whether the export of western technology to the Third World should not be criticised, since it is bound to evoke undesirable side effects and could even lead to calamities. Proper technological education, however, is not just a thoughtless transfer of know-how, but aims at giving a clear insight into the possibilities and limitations of various techniques and their applicability in different situations. Clients from developing countries should be enabled to select the appropriate technology from a wide range of alternative possibilities; this is also necessary for the obvious reason that the level of technological development in the Third World may vary greatly.

For this purpose, ITC's equipment ranges from sophisticated to simple instruments; experimental satellite imagery is studied side by side with conventional black and white photography. Attention is paid both to automatic and manual drawing techniques; next to offset, screen printing is used. The guiding principle is that one should be well informed about a method before being in

a position to accept or reject it.
The idea of instituting an international training centre for aerial survey (being the institute's initial name, hence: ITC) was raised in 1949 by United Nations experts involved in UN's development programme. The proposal could not have come at a more opportune moment for receiving a positive response from the Netherlands. Changing relations in the world in general and the termination of the colonial era in particular had raised the question of how best the Dutch store of overseas knowledge and experience could be put to use; ways and means were sought for adapting higher education to the new international situation. In addition, aerial surveys had already been carried out by the Netherlands at a very early stage; Prof Dr Willem Schermerhorn, pioneer in this field and first post-war Prime Minister, immediately saw the possibilities of such a centre as a contribution to an international development policy. On 11 July 1950, ITC was formally established, made possible by the co-operation of the Delft Institute of Technology and the Wageningen Agricultural University. In September 1951 the first courses started at Delft.

Why not in a developing country ?

The question often posed is whether such an institute should not operate in a country where the development problems occur; it would be difficult to decide, however, where exactly it should then be located. A much better solution is already being realised by establishing a network of regional centres, which are now to be found in South East Asia (Dehra-Dun, India, and Bandung, Indonesia), Latin-America (Bogotá, Colombia) and Africa (Ile Ife, Nigeria). After an initial period of assistance by ITC, these centres work independently with a staff of their own, but they maintain close links with the 'mother' institute. The ITC is not just a national agency, although financed by the Dutch government; it is represented by some three thousand alumni all over the world, the vast majority coming from the developing countries. In this system of international education, ITC functions as a resource base, providing a continuous service to the Third World by updating professional knowledge and offering unbiassed consultation on technical problems.

Adaptation and accommodation

Such a system of international education and consultancy needs permanent re-adjustment and adaptation to changing conditions and technical possibilities. In order that the educational process should proceed as effectively as possible and is adapted to the different background of the clients, ITC has its own Centre for the Advancement of Learning and Teaching (CALT), which is in charge of a critical evaluation before, during and after the training.
The client from abroad faces a double burden: his social position as a mid-

career man is temporarily exchanged for the status of a student, with the added stress of having to conform to a different cultural pattern. This role changing, with its attendant separation from the family, the temporary disconnection of social contacts and the confrontation with an unfamilar way of life, presents considerable difficulties, which could mean a serious disturbance of the necessary concentration of study. For this reason, ITC has always taken care of accommodation as well as of social and medical care. At Enschede, where the institute has been settled since 1971, a modern residential hall is

ITC-buildings at Enschede (courtesy KLM-Aerocarto).

available for the students and their families. The former ITC-building accommodates the students following a course at Delft.

Aerial survey for developing countries

The value of aerial survey for development programmes is easily perceived. Reliable information regarding the topographical situation, the availability of natural resources, and the degree to which the natural environment has been modified by human activities, is needed for any development planning scheme. Although it is, of course, possible to gather this information without the aid of the air photo, experience has shown that in many cases little has been achieved due to the expanse and the near inaccessibility of an area, together

with the lack of a sufficient number of adequately trained personnel. Moreover, the time factor plays a role of prime importance in the development process: the data are needed *now*, not at some convenient moment in the future. By obviating much tiresome and time-consuming field work, aerial photography has proved that it can provide the information required by planners and decision makers in time.

Photogrammetric surveys

The major contribution to training in the ITC is made by the Department of Photogrammetry, which specialises in the art of transforming aerial photographs into topographic maps by means of very sophisticated instruments. The potential use of air photos for this purpose is self-evident: the vertically-taken air photograph is already itself a kind of map. Such 'maps' have been of interest, particularly for military reconnaissance purposes, ever since the first photographs were taken from a balloon. However, a long line of development stretches between this kind of photo reconnaissance and a reliable and accurate mapping technique capable of competing with more conventional methods. What has made the photogrammetric method so valuable for the developing countries, however, is not so much the great accuracy of the maps as the speed with which they can be produced; without the air photo much topographic mapping could simply not be done because of the high cost in time and money.

A difficulty frequently encountered in the establishment of photogrammetric mapping agencies in developing countries is the provision of specialists to fill posts at various levels in the organisation. Their education has to be sufficiently all-round to enable the organisation to cope with various needs, ranging from topographic maps at medium and small scales to large scale maps for engineering or cadastral purposes. The ITC offers courses at different levels in this field of specialised education.

A new training programme has been established on data processing in photogrammetry, and the procurement of computer software.

Aerial photography and survey flight

The production of excellent survey photography depends on an efficient survey organisation, modern instrumentation and well trained personnel. For the organisational efficiency it is desirable that crew, aircraft and instrument systems, flight unit and photographic laboratory operate as an integrated unit. Science and technology in photography, physics and optics, aviation, electronics and other related fields, have developed to such an extent that the production of survey imagery by airborne means is now a specialised profession. ITC offers training courses at various levels in aerial photography,

survey-flight and photographic technology, which provide the trained personnel which is indispensable for any survey organisation.

Cartography

Maps are required for an ever increasing variety of purposes, and there is an ever increasing demand for up-to-date maps of all kinds. In the developing countries this requirement is urgent; topographic and thematic maps are an absolute necessity for the planning and execution of development projects. There has been a steady increase over recent years in the number of institutes offering education and training in cartography. Demand, however, still far exceeds supply, and facilities for such training are particularly poor in many of the developing countries – the very countries which have the greatest and most urgent need for skilled cartographers at all levels. It is against this general background that courses in cartography are offered by the ITC. These courses cover various levels, ranging from training cartographic technicians to providing an education in all branches of cartography for managerial positions.

Resources surveys

The use of aerial photography for this type of surveying is of a different character, since it is concerned not so much with the metric aspect as with the semantic features of the photo image, and therefore lays emphasis on the meaning of the observed phenomena and the conclusions to which they lead. The photo image contains a large store of information which can be interpreted from various scientific viewpoints. Photo interpretation in this sense is, therefore, unlike photogrammetry, not a profession in itself, but a technique of data collection for a variety of scientific disciplines. This difference is, of course, reflected in the nature of training; photo interpretation requires a thorough knowledge of the disciplines for which the photograph is used. Postgraduate courses are offered in the following departments.

Soil surveys

The subject of courses in this department may be defined as photo-interpretation as a means of carrying out soil surveys more quickly, more accurately and more economically than by conventional methods. In this way, recommendations may be given for optimum land utilisation. The soil surveyor undertakes the task of determining the condition of the soil in a systematic way by collecting samples which are representative of larger areas of different soils.
The air photograph is a very welcome aid, since it provides the necessary data from which the interrelated elements of the landscape may be

decided. Apart from soil survey, soil conservation is essential to the system, in particular for those who need insight into the nature of erosion processes.

Forest surveys

The air photo enables the forester to make a quick and efficient forest inventory while analysing the qualitative as well as the quantitative aspects of the forest composition. In the case of tropical forests, this is often the only workable method of data collection on which a plan for forest exploitation can be based. In places where regular exploitation is already taking place, the photo provides data for a sound management programme, including such matters as timber inventorying, reforestation, damage and disease assessment, fire control, and other procedures designed to improve the economic management of the forest.

Geological surveys

The air photo is a very important aid for geological surveying; it may show a connection between geological structures which cannot be observed in the field. Particular attention is paid to applications of photogeology in the preparation of geological maps as well as to hydrogeological and engineering geologies studies.

The hydrogeologist uses the geological survey for groundwater exploration. This is particularly important in order to indicate how this precious liquid might be brought to the surface. The engineering geologist is an adviser to the civil engineer and the town planner in cases where the geological situation is important for a proper site selection.

Geomorphological surveys and geomorphological landscape analysis

Use of aerial photographs here is based on the fact that landforms are usually the most conspicuous features to be seen in the three-dimensional image provided by a stereo-pair of photographs. Thus, geomorphology is a natural starting point for resource inventory and studies of the natural environment. Aerospace imagery is also a unique means of visualising the cultural landscape. The distributional patterns of its various elements can be traced in great detail, and the ecology of the cultural landscape is vividly evident, demonstrating the interdependence of these patterns.

Urban surveys

Everywhere in the world, population growth, social change and economic development contribute to the process of rapid urbanisation. This results in a great need for fast and efficient methods of collecting and analysing

reliable information on physical, social and economic features for urban planning and administration.
Data collection in such a dynamic field requires much time-consuming work, while the necessary manpower and funds are often limited. By using aerial photography, the necessary information can be obtained from photo-interpretation, in combination with statistical and other techniques, integrated in an information system for urban purposes. The operation of such an information system depends on the availability of trained personnel, a requirement which ITC, amongst others, works to alleviate.
Since the urban area is a meeting place for town planners, urban geographers, sociologists and economists as well as others who are interested in urban phenomena, the educational programme is of an interdisciplinary nature.

Rural surveys

For most developing countries, agriculture is the main source of income, besides which the larger part of their populations live in the rural areas. The agrarian sector has to produce the food for the growing number of the people in the non-agrarian sector, and it must also provide the raw materials for export; also, it creates remunerative employment and a market for the products and services of local industry and commerce. In view of all this, a comprehensive study of the rural area is necessary, including such subjects as land use features, cultivated or natural vegetation and the rural infrastructure. Aerial photo-interpretation provides a considerable amount of information on these topics.

Integrated surveys

In all development programmes and projects a need for effective information is increasingly felt. It is, however, widely recognised that information brought in through surveys has all too often been of disappointing quality for use in development planning and implementation. Too many are the examples of survey reports and maps stacked away on file, hardly ever to be looked into again. Those involved in surveys and in development planning mutually recognise that the complexity of the development problems require a comprehensive and joint approach regarding the ways and means of tackling these problems.
More benefit can be expected from proper planning and execution of surveys and better presentation of results within the framework of their application for development planning and implementation. Surveys which have to support a development plan should have a well-defined purpose with clearly formulated objectives. This will enable the specialists to plan their survey activities in such a way that the survey data will be tuned to the goals of the development plan. This is the subject of courses and seminars in multi-

disciplinary investigations for development planning, organised in co-operation with UNESCO.

Mining exploration and exploration geophysics

In the search for solid minerals, a wide variety of geological, geochemical and geophysical methods are applied; aerial photography is of increasing importance in this field. As a rule, several methods are used in a particular exploration venture; the applicability of the methods and the emphasis given

Aerial photograph of the city of Enschede, taken by ITC's own air plane. At the top the ITC buildings. Orientation South-North.

to each of them depend on such factors as the nature of the deposits to be expected and their environmental controls.
A new insight may necessitate a shift of emphasis on certain methods or a complete change of approach; this constant variation in the plan of operation makes it essential that, when in charge of a survey, specialists are aware of the other possibilities in the application of chosen methods. This means that in addition to their specialised knowledge, they should also possess a basic knowledge of the other available exploration techniques. This requirement is reflected in the training programme, which is carried out in close co-operation with the Mining Department of the Delft Institute of Technology.

New methods of teledetection

Besides conventional photography, other means of producing images of the earth's surface have been developed, collectively indicated as teledetection or remote sensing. Firstly, infra-red photography has been applied by using false colour film recording green vegetation as red. This process offers more information than that using the original colour.
In multi-spectral scanning, the reflection of solar radiation is split up into different spectral bands; converting the recorded information into electronic signals and storing these on magnetic tape, electronic mixing is possible in any desired combination. In this way, terrain features with similar spectral properties may be selected and printed out mapwise by the computer. Multi-spectral scanning is used in particular for earth observation by satellites.
Scanners are also applied to detect differences in surface temperature and to produce thermographic images. Finally, radar is a useful method to picture areas under permanent cloud coverage.
ITC offers training in these remote sensing techniques because they are viewed as a welcome additional tool for specific cases where traditional methods fail. However, black and white photography is still the backbone of aerial survey, because it is inexpensive and as a rule offers adequate information.

Research and consulting

As a natural extension of its teaching function, ITC has always carried out research and provided consultative services. Twenty-five years of activity in the field of research and development is not a subject which can easily be summarised, since there are so many disciplines represented at ITC and a total of nearly a thousand papers has been published by its staff.
The underlying principle has been, that research should be primarily directed to the needs of the developing countries. These needs are commonly found in the wide gap between the achievements of the industrial countries and what

is actually required in the Third World. The developing countries are confronted by a large number of procedures and components designed by the industrial world, mainly for its own use. They need to be adapted for the very different taks and circumstances of these countries.
Since the beginning, ITC has been regularly approached for advice or assistance, particularly by former students. Such questions have always been welcome, because of the wish not to loose contact with the practical problems of production and organisation; experience thus obtained is of eminent importance as a feed-back for education. If such advice or assistance involves more than a few letters or a short investigation, the request has to be formalised into a consulting project. Many of these projects have been carried out; ITC is not available, however, for routine production work belonging to the sphere of private enterprise.

Basic Data

Courses

All courses are given in English.
Courses P.1, P.5 and P.8 are also given in French.
In many instances, the exact duration of the course cannot be stated, as the ITC's educational system is an individual one adapted to the particular situation of each student. As the former educational background, age and years of practical experience of candidates from all over the world may differ substantially, some may be able to finish their studies at the ITC in the minimum period indicated, whereas others may need longer.

Photogrammetry, Aerial Photography and Cartography

P.2	M.Sc. degree programme in photogrammetry. The lecture period lasts 12 months while an additional period of 6–10 months is required for the preparation of a thesis for those who want to obtain the M.Sc. degree. Admission after successful completion of course P.5.	18–22 months
P.1	Post-graduate diploma course in photogrammetry	12–18 months
P.5	Technologist's diploma course* in photogrammetry	12–18 months
P.8	Technician's diploma course in photogrammetry	8–12 months
P.3	Post-graduate diploma course in aerial photography (survey flight)	12–16 months
P.4	Post-graduate diploma course in aerial photography (photographic technology)	12–16 months
P.6	Technologist's diploma course* in aerial photography (survey flight)	12–16 months

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P.7	Technologist's diploma course* in aerial photography (photographic technology)	12–16	months
C.1	M.Sc. degree programme in cartography As the C.2 course is a prerequisite for admission to the C.1 course, the total duration of the complete M.Sc. degree programme (C.2 and C.1) is 24–30 months.	12–18	months
C.2	Post-graduate diploma in cartography	12–14	months
C.3	Technologist's diploma course* in cartography	12–14	months
C.4	Technician's diploma course in cartography	10–12	months

* Formerly known as the engineering diploma course (till 1972)

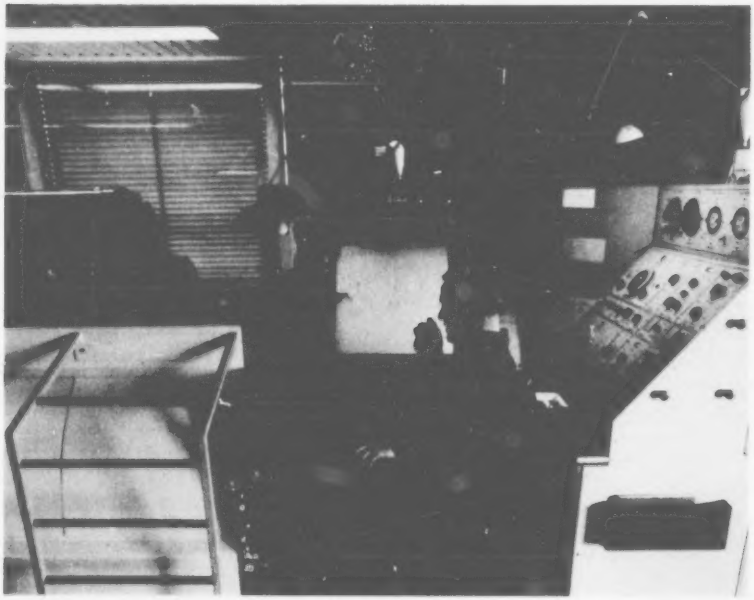
Natural Resource Surveys

N.1.1	Basic course in the application of aerial photography and other remote sensing techniques in geology	3– 6	months
N.2.1	Basic course in the application of aerial photography and other remote sensing techniques in applied geology with emphasis on hydrology or on engineering geology	3– 6	months
N.1.2	Standard course in geological survey using aerial photography and other remote sensing techniques	12	months
N.2.2	Standard course in applied geological survey using aerial photography and other remote sensing techniques with emphasis on hydrology or on engineering geology	12	months
N.1.3	Advanced course in geology using aerial photography and other remote sensing techniques, with the additional possibility of obtaining an ITC M.Sc. degree. Admission after successful completion of course N.1.2 or N.2.2	12–16	months
N.1.4	See page 90 , in co-operation with the University of Leyden	12–16	months
N.3.1	Basic course in the application of aerial photography and other remote sensing techniques in geomorphology	3½	months
N.4.1	Basic course in the application of aerial photography and other remote sensing techniques in geographical landscape analysis	3½	months
N.3.2	Standard course in geomorphological survey and applied geomorphology using aerial photography and other remote sensing techniques	11	months

N.3.3 Advanced course in geomorphological survey using aerial photography and other remote sensing techniques, with the possibility of obtaining an ITC M.Sc. degree. Admission after successful completion of course N.3.2 — 12–16 months

N.5.1 Basic course in the application of aerial photography and other remote sensing techniques in soil survey — 7 months

N.6.1 Basic course in the application of aerial photography and other remote sensing techniques in soil erosion survey — 7 months



Training of participants on ITC's flight simulator.

N.5.2 Standard course in soil survey using aerial photography and other remote sensing techniques — 12 months

N.6.2 Standard course in soil erosion survey using aerial photography and other remote sensing techniques — 12 months

N.5.3 Advanced course in soil survey using aerial photography and other remote sensing techniques with the possibility of obtaining an ITC M.Sc. degree. Admission after successful completion of course

	N.5.2 or N.6.2	12–16	months

Social Sciences and Integrated Surveys

US.1	Standard post-graduate course in urban survey (survey with aerial photography and other remote sensing techniques for urban planning and administration)	9	months
US.2	Advanced studies in urban survey	12–16	months
	Multi-disciplinary investigations for development planning:		
IS.1	Standard post-graduate course in integrated surveys	9	months
IS.2	Seminar on integrated surveys for project managers, administrators, etc.	7	weeks
IS.3	Advanced studies in integrated surveys	12–16	months

Additional courses

In co-operation with the Delft University of Technology and the University of Leyden

M.1	Standard course in mining exploration with special emphasis on field exploration and geological photo-interpretation	12	months
M.2	Standard course in mining exploration with special emphasis on exploration geophysics	12	months
M.3	Programmes of advanced study in mining exploration with possibilities of specialisation in any of the following subjects: Structural geology and economic geology; Exploration geophysics; Exploration geochemistry; Evaluation. The M.3 courses give the possibility of obtaining an ITC M.Sc. degree. Admission after successful completion of course M.1, or N.1/2.2. These courses are given in Delft.	16	months
N.7/ 8.1	Basic course in the application of aerial photography and other remote sensing techniques in forestry	9	months
N.7.2	Standard course in forest survey in the temperate and arid tropical regions using aerial photography and other remote sensing techniques	12	months
N.8.2	Standard course in forest survey in the humid tropics using aerial photography and other remote sensing techniques	12	months
N.7/ 8.3	Advanced course in forest survey using aerial photography and other remote sensing techniques, with the possibility of obtaining an ITC M.Sc. degree. Admission after successful completion of course		

N.7.2 or N.8.2	12–16	months
N.9.2 Standard course in rural survey, covering land use and agriculture, rangelands and (semi)natural vegetation and aspects of human geography, using aerial photography and other remote sensing techniques	11	months
N.9.3 Advanced course in rural survey, covering land use and agriculture, rangelands and (semi) natural vegetation and aspects of human geography, using aerial photography and other remote sensing techniques, with the possibility of obtaining an ITC M.Sc. degree. Admission after successful completion of course N.9.2	12–16	months
N.10.1 Short course in remote sensing application, concentrating on remote sensing in geology, water resources, geomorphology, soil survey and terrain classification. Priority given to ITC alumni	7– 9	weeks
N.10.2 Short course in remote sensing application, concentrating on remote sensing in agriculture, forestry, range resources and ecology. Priority given to ITC alumni	7– 9	weeks
In co-operation with the University of Leyden		
N.1.4 Advanced course in geology with emphasis on structural geology, with the possibility of obtaining an ITC M.Sc. degree. Admission after successful completion of course N.1.2, N.2.2 or M.1 This course is given in Delft and Leyden.	12–16	months

Information: ITC, 350 Boulevard 1945, Enschede

Starting dates of courses in 1977

Photogrammetry (English)	1 February and 16 August
Photogrammétrie (French)	1 November
Aerial photography and survey flight	16 August
Cartography	1 February
Geological and applied geological surveys	6 September
Geomorphological survey and geographical landscape analysis	6 September
Soil and soil erosion surveys	4 January
Forest survey	4 January
Rural survey	6 September

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Urban survey		4 October
Integrated survey		4 October
Seminar on multi-disciplinary investigation for development planning		18 April
	and	1 November
Mining exploration and exploration geophysics		6 September
Remote sensing applications		17 January 1978

Note:

As all courses start on Tuesdays, participants who have a fellowship from the Netherlands Government or from one of the United Nations agencies should report to their fellowship officer in The Hague on the preceding Monday *at the latest*.

Because the schedule of the courses is very tight, selected candidates are advised to arrive the *week before* the announced starting date. Candidates arriving more than two weeks after the starting date may be refused admission.

IAC: International Agricultural Centre at Wageningen

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International Agricultural Education in Wageningen started in 1951 with the foundation of the International Agricultural Study Centre. In 1953 a course in Rural Extension was begun. The duration was limited to four weeks; the language problem was solved by working simultaneously with three languages–German, English and French. The course was intended for those employed in the Rural Extension Service in their own country. There were no specific requirements for admission. This course, which up till now has been held annually and has been attended by as many as 2,400 persons, made it possible to gain an insight into the specific needs of the developing countries. Owing to the increasing number of foreigners, mainly from developing countries, who since the beginning of the fifties had been coming to the Netherlands to improve their knowledge, a growing need was felt to provide more training.

In Wageningen the foreigners were taken care of by the International Agricultural Training Centre that later became the International Agricultural Centre (IAC). A study programme was drawn up to meet their personal needs. These programmes for individual specialisation are still being carried out. The IAC assists in securing places in teaching and research units of the Agricultural University, academic institutes, rural extension, agricultural education, training centres, etcetera. This co-operation is indispensable for making the programmes a success. The average duration of stay is over three months. The last few years the number of individual studies has amounted to approximately 200 per year. More than 4,000 persons have had this particular type of training.

Origin of the courses

Very soon there proved to exist more interest in certain subjects, especially those for which the Netherlands is renowned abroad, than could be handled. The presence of the Agricultural University and the many institutes in Wageningen contributed to this. This led to a study of the possibilities of setting up and carrying out a number of courses. A number of starting-points has proved to be effective:

– a duration of the course of approximately three months is sufficient for

gaining the necessary knowledge; because of the short duration the participants are not absent too long either from home or from their jobs;
- the participants must be specialised in a certain field;
- the level of instruction is mainly post-graduate; at least a B.Sc. degree and a number of years of practical experience; the courses are intended to refresh the knowledge of the participants and to give additional information on new developments;
- the medium of instruction is English;

Practical training of IAC-participants

– no diploma is given, but a certificate of attendance.

In selecting the participants attention is paid to their place in society, their position and the possibilities they will have of applying their knowledge and passing it on to others. One of the main characteristics of the IAC-courses is that only the course-leader is employed by IAC and that the lecturers come from among the many specialists that are employed both in the Agricultural University and the institutes in and around Wageningen. This set-up is possible because the agricultural sector is as it were one big reservoir of know-how and experience that can be made use of. There are many experts with specific knowledge in certain fields, eg tropical experience.

Flexibility of the courses

The following courses are organised by IAC; mention is made of the year in which the first one was held and of the total number of participants up to and including 1976.

1962	Land Drainage	419
1965	Nematology	132 (up to and including 1972)
1971	Plant Breeding	128
1971	Vegetable Growing	142
1972	Potato Production	117
1972	Plant Protection	101
1973	Dairy Cattle Husbandry	97
1966	Soil Science	96 (up to and including 1970)

The list shows that two of the courses are no longer held, to wit Nematology and Soil Science; both, however, had a follow-up. The course in Soil Science distinguished itself from the other courses by its long duration, namely nine and a half months. The course in Nematology is proof of the flexibility of the IAC set-up. In the Netherlands it was superseded by a course in Plant Protection that covers a wider range. However, the course is carried on abroad, namely in India for South East Asia (from 1967 onwards) and in Venezuela for Latin America (from 1973 onwards). During the first few years assistance was given by the teaching and research unit of Nematology, the Dutch course-leader and some lecturers. This co-operation gradually decreased; at present the courses are led by former participants of the courses held in Wageningen. Furthermore, in close co-operation with the International Institute for Land Reclamation and Irrigation (ILRI) a training institute has been set up in Peru to provide training for local people.

Ad hoc courses

IAC is called on more and more often to organise ad hoc courses in the Netherlands for small groups of foreigners. Examples are the group visits made by counterparts of the Farmers' Training Centres project in Kenya. Groups of

ten people came to the Netherlands in 1971, 1972 and 1973 and stayed there for three months. The programme included visits to the training centres in Almelo, Ede, Emmeloord and Oenkerk.
Another ad hoc course, financed by the Libyan Government, was held to train AI inseminators. There is quite a divergence in aim, duration, financing and nature of this category of courses. Apart from the training at post-graduate level mention should be made of the courses at intermediate level as organised by the National Agricultural College in Deventer and the Vocational Training Centre in Barneveld.

Conclusion

The Dutch know-how and experience in the field of agriculture is passed on at different levels. The activities cover the complete range of agriculture, since apart from the fixed courses individual specialisation and ad hoc courses are offered. Moreover the training has been adapted to specific needs and new developments (eg, the course in Nematology). In as far as this seemed desirable courses have been transferred to Third World countries.

Basic Data

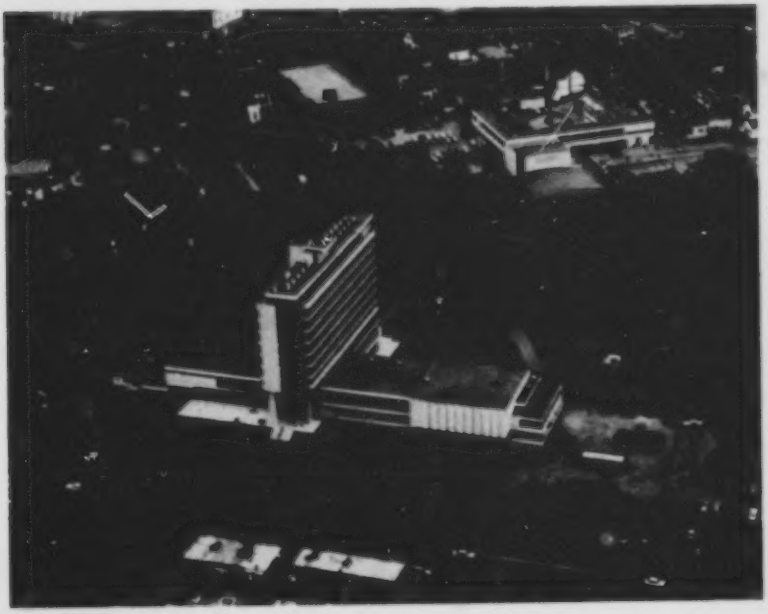
Land Drainage

Programme: The course is intended for those who are engaged in the field of land drainage, and its objective is to provide participants with a thorough knowledge of the issues related to this subject: the underlying physical and agricultural principles, the surveying methods, and the principles of design and construction in both humid and arid regions. The course, however, does not cover civil engineering matters such as structures for flood control or other major hydraulic engineering works. The course thus serves the needs of engineers, agricultural hydrologists, and drainage and irrigation agronomists who are involved in drainage investigations and the planning and design of land drainage systems.
Requirements for admission: University training in agronomy, civil engineering, hydrology or similar disciplines (at least a B.Sc. degree) and several years experience in land drainage. Next course: August–December. Closing date for application: 15 May. Medium of instruction: English. Fees: approximately Dfl. 1,000 (including tuition fee, transportation charges during field trips, programmes and papers). Location: Wageningen.

Dairy Cattle Husbandry

Programme: The course is intended to refresh the knowledge of the participants and to provide them with additional information on important aspects of dairy cattle husbandry, such as nutrition, grassland management, fertility

problems and artificial insemination, breeding, management, care and housing as well as hygiene and disease prevention. In general the course will deal with aspects which within a short time may lead to a higher milk production, both per animal and per acre.
Requirements for admission: University training in agronomy or veterinary education (at least a B.Sc. degree) and several years experience in dairy cattle husbandry. Next course: May–June. Closing date for application: 10 December. Medium of instruction: English. Fees: approximately Dfl. 1,000 (including



The IAC-building at Wageningen

tuition fee, transportation charges during field trips, programmes and papers). Location: Wageningen.

Plant Protection

Programme: The course is intended for university trained specialists of Plant Protection Services, Advisory Services and similar organisations, mainly from developing countries. It is important that applicants have been working in this field for some years already. The objective of the course is to refresh the knowledge and to give the participants up to date information about practical plant protection. Requirements for admission: University training in

agronomy and plant protection (at least a B.Sc. degree) and several years experience in plant protection. Next course: July–November. Closing date for application: May. Medium of instruction: English. Fees: approximately Dfl. 1,000 (including tuition fee, transportation charges during field trips, programmes and papers). Location: Wageningen.

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Potato Production

Programme: The course is intended for those who are engaged in research on and training in potato production subjects. It is attempted to provide participants with a thorough knowledge and practical insight into scopes of fundamental importance, enabling them to evaluate the techniques of production in their own country and to adapt techniques and systems applied elsewhere to their own conditions.
Requirements for admission: University training in agronomy and potato production (at least a B.Sc. degree) and several years experience in potato production. Next course: April–July. Closing date for application: 20 January. Medium of instruction: English. Fees: approximately Df. 1,000 (including tuition fee, transportation charges during field trips, programmes and papers). Location: Wageningen.

Plant Breeding

Programme: The course is intended to provide the participants with additional training in practical methods of breeding of annual crops in general and annual foodcrops in particular. Attention will also be paid to additional training regarding scientific background in genetics and related subjects. The concept "breeding" should be seen in a broad sense as, eg, introduction and distribution of high-quality seed and plant material are also included. Much attention will be paid to "self-activity" in practical breeding work, to the organisation of various government services, the problem of instructing people on the subjects of variety testing, multiplication, seed supply, introduction of new varieties to farmers, etc.
Requirements for admission: University training in agronomy and plant breeding (at least a B.Sc. degree) and several years experience in plant breeding. Next course: March–July. Closing date for application: 25 December. Medium of instruction: English. Fees: approximately Dfl. 1,000 (including tuition fee, transportation charges during field trips, programmes and papers). Location: Wageningen.

Vegetable Growing

Programme: The course is intended for university trained specialists mainly from developing countries, working in Horticultural Education, Research and Extension, with emphasis on vegetable crops. The objective of the course is

to refresh knowledge and to give information on various aspects of commercial vegetable production, on research and on extension work in related fields.
Requirements for admission: University training in agronomy and horticulture/vegetable growing (at least a B.Sc. degree) and several years experience in vegetable growing. Next course: August–November. Closing date for application: 7 May. Medium of instruction: English. Fees: approximately Dfl. 1,000 (including tuition fee, transportation charges during field trips, programmes and papers). Location: Wageningen.

Specialisations in Agricultural Science

Programme: Individual, agriculture in the widest sense. A limited number of agricultural scientists are given the opportunity to follow a programme of study in their particular field of specialisation.
Requirements for admission: Minimum B.Sc. and several years of experience in the particular field of study. Medium of instruction: English (usually). Duration: usually 3–6 months, occasionally up to 12 months. Fees: usually none, sometimes up to Dfl. 2,250 per month. Location: The Netherlands.

International Course on Rural Extension

Programme: The course is meant as an in-service training to extension workers in agriculture, home economists and socio-economists. Subjects examined are orientated towards the changing needs and growing knowledge in the various fields of a rural extension service. Specific social and economic problems will be discussed, as well as other important aspects of the subject.
Requirements for admission: B.Sc. level of education and several years experience in rural extension, either in management of a service or in actual advisory work or in teaching extension. Next course: One month in summer (July). Medium of instruction: English. Fees: Dfl. 2,150 (1976) (including administration fees, board and lodging, transportation charges during field trips, programmes and papers). Location: Wageningen.

Information: Director International Agricultural Centre, Lawickse Allee 11, P.O. Box 88, Wageningen. Tel.: 08370–19040.

AU/MSc: Master of Science Course Soil Science and Water Management of the Agricultural University

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The Agricultural University of Wageningen has long enjoyed widespread international recognition in the sphere of farming and irrigation. These occupations may well be regarded as the principal measures on which efficient agriculture and food production in the developing countries are founded.
The primary aim of the introduction of a M.Sc. training in Soil Science and Water Management is the education of agriculturists, and others similarly orientated, from the developing countries who hold at least a B.Sc. degree, and to academics of M.Sc. level, specifically in the crafts of ground-mapping and land classification, soil fertility and water control.
The training offered is designed to enable them independently to apply what they have learned, to pass it on, and possibly to specialise yet further, for the benefit of the agriculture and economy of their homelands.
The second objective is the possibility of helping the agricultural faculties in the developing countries to create their own training facilities in the spheres mentioned, to M.Sc. level. This will need to be realised through co-operative connections with the universities concerned. The need for a M.Sc. training at Wageningen is apparent from, among other things, the large number of candidates nominated by the developing countries for participation.

Number of students limited

Since the beginning of the M.Sc. Course at the Agricultural University in 1971 the following numbers have taken part:

Speciality	1971–1973			1973–1975			1975–1977		
	c	ap	nc	c	ap	nc	c	ap	nc*
ground-mapping/) land classification)	16	6	3	28	8	7	37	3	2
soil fertility	32	6	4	33	5	6	36	6	5
water control	26	12	9	40	14	12	53	16	13
miscellaneous	18	-	-	2	-	-	4	-	-
Total	92	24		103	28		134	25	18
Passed		18	15		24	28			

* c = candidates; ap = admitted participants; nc = number of countries of origin

In order to ensure effective instruction and study guidance, the number of students admitted is limited to a maximum of 25 or 30. The view that the level of teaching of the specialised subjects should be equivalent to that given to Dutch students has ruled from the outset. Only by careful pre-selection of the candidates—including an entrance exam held in the Dutch embassies, in the basic subjects of chemistry, physics and mathematics—and a rigorous study programme can the attainment of the required competence within two study-years be ensured. The training comprises various types of study: lectures,

Roots and pores are counted in the soil profile

laboratory work, field exercises and excursions; it is concluded with individual research in the main subject and one supplementary subject, and the presentation of a thesis.

Obvious relation

The effect of the careful pre-selection may be seen in the accompanying table, which illustrates the connection between the results attained in the entrance exams and during study at Wageningen respectively. In spite of the inevitable discrepancies, there is an obvious relation between the sets of figures. We conclude, therefore, that the entrance exam has proved its worth as a means of improving the selection procedure.

The M.Sc. training at the Agricultural University comes under the Permanent

Foreign Committee established by the faculty. This committee has in turn set up a sub-committee for organisation and supervision, comprising representatives of the pedagogic groups concerned with the training and a representative of NUFFIC. Day-to-day management rests with the Bureau of the Director of Studies, which, with a staff of seven scientific colleagues, provides for an effective procedure and guidance of the students in their work. In all, about 50 teachers of the University collaborate in the training.

Instruction in English

The training is principally intended for students from the developing countries outside those areas where the Dutch language is used, who already possess a B.Sc. degree in agriculture or a related discipline.
The language of instruction is English, the duration two study-years, ie, 22 months. Commencement is in August in those years of uneven number.
The following possibilities for specialisation are offered:

- Earth Mapping/Land Classification;
- Soil Fertility, Soil and Crop Analysis; and
- Water Management (Irrigation, Drainage, Agrohydrology).

At the conclusion of the first year of study an exam must be passed in order to gain entry to the second study-year. The training ends with a final exam, following which successful candidates are awarded an M.Sc. Diploma by NUFFIC.
Registration procedure is announced in the international professional press and in a leaflet, the latter including the relevant information about the content and level of the training, the conditions of entry and instructions for initiating the registration procedure. When applicants have provided the required documents the Bureau of the Director of Studies sends them study material, to enable them to prepare for the entrance examinations in the fundamental subjects of chemistry, physics and mathematics. These written entrance exams are taken in the Dutch embassies or consulates, at the beginning of the year in which instruction is to commence.

Information: Foreign Bureau, International Agricultural Centre, Wageningen, Stadsbrink 389, Wageningen; Director of Studies, M.Sc. Course Soil Science & Water Management, Duivendaal 6a, Wageningen.

NACD: The National Agricultural College at Deventer

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A visitor who does not know the Netherlands and who enters the large building of the National Agricultural College in Deventer would, without much doubt, get an impression of an old if not old-fashioned institute. The doors are thick and heavy, the corridors are spacious and high and the foundation of the building must have been made by a mason who knew how to brace the heavy walls. There is a general awareness of solidity.

The visitor of today who knows that it is a pre-World War I building perhaps guesses that the spirit of thoroughness which pervades the building could also have been the reason behind the start of this agricultural education which is given there. The visitor would have drawn the right conclusion.

It happened that prior to the first world war agricultural education was much in the limelight. A new thought had developed. The idea was that young students of agriculture should not only familiarise themselves with the skills from the field but that they would find the real foundation in the outcomes of the basic sciences: in physics and chemistry, in biology of course and in mathematics and economics.

Since its inception in 1912, this idea of agriculture as an applied science has drawn many thousands of young Dutchmen to the College. They enter having completed a secondary education and leave after four years (it used to be three) ready to make their contribution to society. Their preconceived role according to the Dutch educational system is that they can complete tasks at the highest level of practical skill that may be asked. The training they received at the College was not primarily concerned with the furthering of agricultural science—as is the task of universities—but advanced agricultural science inspires them to solve problem-situations in a practical way as is the task of this College.

Series of courses

In 1962 the fact was acknowledged that a practical education of this status could be of importance to the young free nations. The decision was made that the curriculum could and should be translated into English. Since 1962 some 350 students have enjoyed the benefits of this education and are now making use of it in their day to day tasks.

Yet the fact that agricultural education is important was also acknowledged by the developing countries themselves. As a matter of fact many a young nation spends a tremendous proportion of its national budget on education and this has resulted in flourishing schools of agriculture. The College therefore decided on a new approach, that of serving agriculture in the tropics. The reader of this book will note that in doing so this College was not the only institute to change. It has done this because there remain smaller or bigger areas of agricultural know-how which are as yet insufficiently covered in the

NACD-participants in the field

educational systems now found in the tropics.
Therefore, as from 1972, the Deventer College organised four courses on different subjects for which it felt itself well equipped, viz.
farm management
agricultural co-operatives
farm mechanisation
tropical animal production
The organisation and curricula were put in the hands of boards under the guidance of a course-leader. It will be evident that lecturers need to be familiar with the tropics as well as with educational practice.

The Curriculum

A short description of each of these four courses cannot offer more than the

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briefest of outlines.

1. The course in farm management teaches its students in the first place how to collect and compile data and how to make decisions giving best economical results. Both the private and the community-organisation are in need of management on the basis of measurement.
2. The course in agricultural co-operatives is based on the important role which co-operatives play in the national agricultural economics of both developed and developing countries. The Netherlands is a country where co-operation in agriculture is a widespread practice. This presents an opportunity to study the conditions which have led to this situation.
3. The course in farm mechanisation tries to assist students in equipping the agriculturist with suitable tools. All tropical crops can be further mechanised to a degree which is economically attractive. It is the imagination and the ability to think of solutions for a more mechanised agriculture and the skill of translating this into suitable implements which form the real objectives of this course.
4. The course in tropical animal production brings its students into contact with the newest Dutch methods of animal husbandry. In the field of breeding, animal health, feeding and processing of animal products the Dutch have achieved good results over the years. Studying the new concepts so as to find out what is useful for the student in his home-country is one of the objectives of this course.

Conclusion

A final word about the organisation of these courses might assist in the correct assessment of its place in the Dutch national scene. It is obvious that the four courses, each of which are offered to twelve students, could not be put into operation without the active support of the Dutch community at large. Co-operation with and support from enterprises, ministries, and institutes are for a large part enabling the National Agricultural College to offer the above courses. In the spirit that characterises this book we hope that the College will continue to receive goodwill and co-operation from everyone concerned and particularly from those for whom "International Education" is meant.

Basic Data

Tropical Animal Production

With the co-operation of: Vocational schools in Barneveld and Oenkerk.
Financed by: Ministry of Agriculture and Fisheries.
Description: The course is meant to give additional, mainly practical training

to workers in the field of animal husbandry in the tropics, especially to those who are in a position to disseminate their knowledge such as extension-workers, managers, and veterinary workers. Since new techniques and new veterinary discoveries are of increasing significance to the economics of the poultry-, pig- and dairy-industry, it is frequently necessary to update workers in these respects. The high level of achievement in dairy farming and stock-breeding in the Netherlands guarantees a suitable environment for study to the participants.

Programme: Much of the programme is devoted to practical training at one of the vocational schools, to excursions and contact with practical people. The remainder of the time is put aside for theoretical or laboratory instruction comprising the following subjects: climatology, animal husbandry, veterinary science, economics and keeping of accounts, pasture and fodder-crops, farm buildings, technology of animal products, mechanisation and extension. Requirements for admission: At least a certificate from a school of agriculture and experience in poultry and/or pig and/or cattle-farming. Medium of instruction: English. Diploma: Successful attendance leads to a diploma. Course: September–mid June. Closing date for application: 1 May. Tuition fee: Dfl. 2,800. Location: Deventer, Barneveld, Oenkerk.

Farm Management

Financed by: Ministry of Agriculture and Fisheries.

Description: Developing countries are planning to increase food production to an extent which outstrips the growth in population. At the community level this requires an increased allocation of managerial skills so that decisions on essentials such as an appropriate programme, budget planning and credit-inputs will lead to the desired results. The present course is meant to hand to its participants the tools by which the drive for this expansion can be measured and guided. Fundamental to the course-programme is the farm-unit and its economy. Therefore much attention is devoted to farm-management and farm-administration.

Programme: farm-management, administration, agricultural economics, extension and methods of extension, organisation of distribution of agricultural products. Requirements for admission: At least a certificate from a school of agriculture and experience in the field of farm-management. Medium of instruction: English. Diploma: Successful attendance leads to a diploma. Course: Mid August–mid December. Closing date for application: 1 May. Tuition fee: Dfl. 1,200. Location: Deventer

Farm Mechanisation

With the co-operation of: Vocational schools in Ede and Emmeloord.

Financed by: Ministry of Agriculture and Fisheries.

Description: The course offers a practical as well as theoretical training programme. It is expected that students, upon completion of the course, are able to play an important role in the mechanisation of tropical crops. Students will be made inventive in finding mechanised solutions to agricultural problems. They will also be able to demonstrate to operators and mechanics how the best performance is obtained from a piece of agricultural machinery. Attention is paid to trouble-shooting and preventive maintenance, tools and smallscale equipment.
Programme: Metalwork, welding, farm engines and tractors, physics, farm implements with regard to use, maintenance and repair. Extended periods of practical training at vocational schools for mechanised agriculture. Visits and excursions to larger and smaller workshops.
Requirements for admission: At least a certificate from a school of agriculture and experience in the fields of mechanisation. Medium of instruction: English. Diploma: Successful attendance leads to a diploma. Course: September–mid June. Closing date for application: 1 May. Tuition fee: Dfl. 1,800.
Location: Deventer, Ede, Emmeloord.

Co-operation

With the co-operation of: National Trade Council "CEBECO".
Financed by: Ministry of Agriculture and Fisheries.
Description: Students participating in this course will receive a thorough practical and theoretical training in the organisation and administration of an agricultural co-operative society. Since co-operation is a long accepted and well-established form of enterprise in the Netherlands, students are able to benefit from the experience and know-how available in this country.
Programme: Co-operative administration, co-operatives, agricultural economics, extension and education, organisation of distribution of agricultural products. Requirements for admission: At least a certificate from a school of agriculture and experience in the field of co-operation. Medium of instruction: English. Diploma: Successful attendance leads to a diploma. Course: Mid January–mid May. Closing date for application: 1 October. Tuition fee: Dfl. 1,200. Location: Deventer.

Information about all courses: National Agricultural College, P.O. Box 7, Deventer. Tel.: (05700) 22150. Private students should contact the College for additional costs; applicants for fellowships should contact the nearest Netherlands Diplomatic Representative.

BC: (Barneveld College): Training Centre with International Courses on Animal Husbandry

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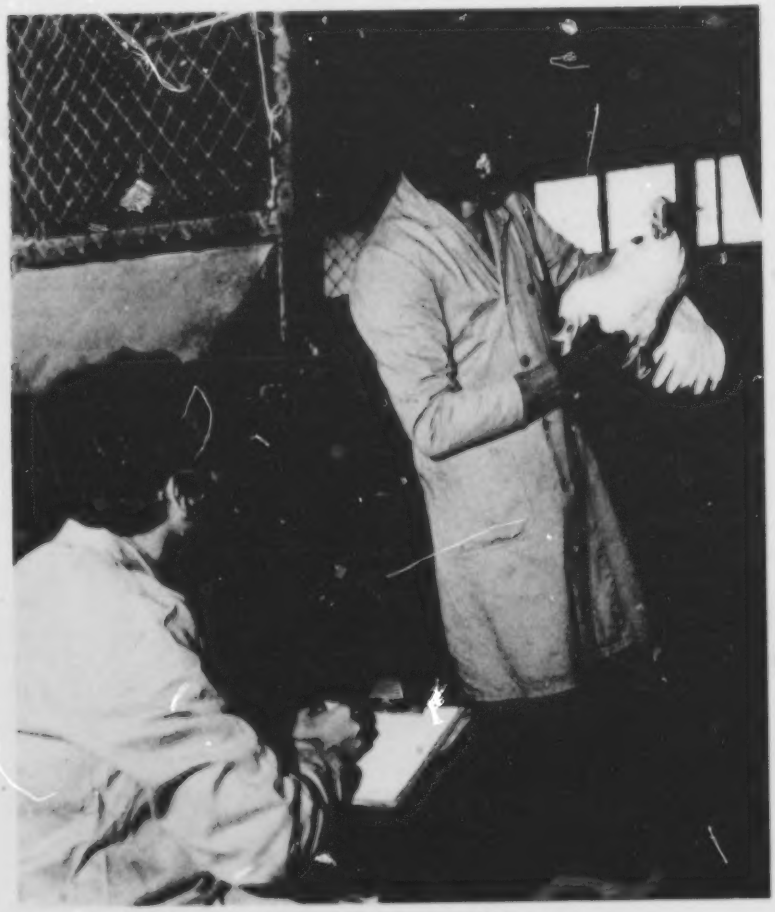
At least 40% of the world population is estimated to be suffering from malnutrition, especially in the developing countries, where high quality animal protein is markedly absent from the diet of children, pregnant women and the elderly.

Poultry and pig breeding is practised in many developing countries, though too often inefficiently. The products of these industries could provide a much greater supplement of animal protein than they do. Application of better techniques is all the more necessary because production per head of the population in these countries nevertheless compares favourably with that in other sectors of their animal husbandry.

Future progress therefore requires the presence of specialists in these developing countries, to provide information and practical guidance for the farmers, to train pupils in schools, or to participate in development projects. The training of these "field-experts" is so specialised that a separate Division for International Education has been established at Barneveld College, directed at the training of poultry and pig breeding specialists, and at several different levels. Particular mention may be made of the following two important curriculae: the International Course in Pig Husbandry and the International Course in Poultry Husbandry, each lasting six months. Participants in these courses work on development projects, in agricultural information and education, and in other branches of animal husbandry. Generally speaking, the students maintain direct contact with those concerned with production in poultry and pig breeding in their own countries.

Students taking these courses receive theoretical as well as practical training, with emphasis on the latter. The situation and circumstances in Third World countries are imitated as realistically as possible by provision of special equipment. A number of chicken coops and pig pens have been erected which, with few changes, can also be built in developing countries. The students of these international courses exercise the complete care of the animals housed here, and so acquire familiarity with the whole production process, embracing all aspects of the economics, genetics and breeding, egg laying and hatching, accommodation, hygiene, nutrition, general management and optimisation of

production. Concerning nutricion, mention may be made of the considerable attention paid to the use of offal and by-products from agriculture and industry in the developing countries, in the mash fed to laying-hens, table chickens and pigs, in the so-called "small units".
During these international courses students are prepared for their tasks on return to their homelands. They write a so-called "pilot project", in which they expound their ideas, and which is subsequently discussed with a teaching staff of Barneveld College. Naturally, not only the technical but also



Selection of chickens for laying during a practical lesson.

the socio-economic aspects are considered. Moreover, practical exercises in communicative, educative and informative techniques have their place in the study programmes.

Need for specialists

An enduring need for specialists in the sphere of poultry and pig breeding will remain for the foreseeable future. These experts can be trained at Barneveld College and possibly in their own countries. There are already a number of specialists who have been trained at Barneveld College within the framework of bi-lateral cooperative projects in animal husbandry. This will undoubtedly continue in the future, possibly including training in the developing countries themselves.

Another problem requiring constant attention is that of impediments to the good functioning of poultry and pig husbandry in Third World countries. One of these is the provision of the right food to the poultry- and pig-raising industries. Training in this sphere could fill a pressing need. Extensive plans in this direction already exist. In this area, too, advantage can and should be taken of the extensive technical knowledge available in the Netherlands and in Barneveld College. The processing of the products from the poultry and pig breeding sector should also be made a subject of study. All these activities can help to prevent a worsening of the food situation in the developing countries and an improvement in income levels there, especially that of the "small-holder".

Basic Data

Pig Husbandry

Programme: The course is intended to refresh the knowledge of the participants and to provide them with additional information on important aspects of pig husbandry, like economics, genetics and breeding, hygiene and disease prevention, housing and care, management and nutrition. Most attention will be paid to those aspects which may lead to higher meat production within a short time. Theoretical as well as practical courses are taught. The course is practice directed; many practice lessons and practical activities are included and each participant fulfils a practical traineeship on the pig farm of Barneveld College. On this farm there are adjusted piggeries. Moreover, attention is given to communication- and transfer techniques, planning and reporting.
Requirements for admission: General Certificate of Education at "A" level in two subjects and having been engaged in pig husbandry or closely related subjects for at least three years. Age between 23–35 years.
Diploma: "Certificate of Attendance", and after successful attendance

"Diploma" (4 grades).
Medium of instruction: English.
Courses: September–March.
Fees: approximately Dfl. 1,500 (including i.a. tuition fee, transportation charges during field trips).

Poultry Husbandry

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Programme: The course is intended to refresh the knowledge of the participants and to provide them with additional information on important aspects of poultry husbandry, like eggs and hatching process, economics, genetics and breeding, hygiene and disease prevention, housing and care, management and nutrition. Most attention will be paid to those aspects, which may lead to higher chicken meat and egg production within a short time. Theoretical as well as practical courses are taught. The course is practice directed; many practice lessons and practical activities are included and each participant fulfils a practical traineeship on the poultry farm of Barneveld College. On this farm there are adjusted poultry houses. Moreover, attention is given to communication- and transfer techniques, planning and reporting.
Requirements for admission: General Certificate of Education at "A" level in two subjects and having been engaged in poultry husbandry or closely related subjects for at least three years. Age between 23–35 years.
Diploma: "Certificate of Attendance", and after successful attendance "Diploma" (4 grades).
Medium of instruction: English.
Courses: September–March.
Fees: approximately Dfl. 1,500 (including i.a. tuition fee, transportation charges during field trips).
Location: Barneveld.
Information: Director Barneveld College, 32 Wesselseweg, P.O. Box 64, Barneveld, the Netherlands. Cables: BARCOL. Tel. 03420–4881.
Both courses are organised in co-operation with the International Agricultural Centre, 11 Lawickse Allee, P.O. Box 88, Wageningen, the Netherlands.

Other activities

Besides the above courses, Barneveld College also organises courses at the request of government agencies and industry. Furthermore, assistance is given to courses and programmes of other institutions for International Education as well as programmes for individual trainees.

Information: Barneveld College, P.O. Box 64, Barneveld, the Netherlands. Tel. (03420) 4881.

IHE: International Institute for Hydraulic and Environmental Engineering at Delft

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The leading objective of the Institute is the promotion of the better use of water-resources as a vehicle of development by the transfer of knowledge and experience.

Among our natural resources, water is without any doubt the most important. Water, besides being essential to life, is used in almost all industrial processes. Seas and rivers carry a large part of the world's traffic. Optimalisation of agricultural output depends on the control of water supply and discharge. The efficient use of ground water is of increasing importance.

The availability of water for drinking purposes and for industrial processes not only demands economical use, but also control of the waste products of the community, most of which are discharged into open water and thus form a permanent threat to public health. At boundaries between land and water, lives and commodities are exposed to continuous danger. Long-term agricultural and industrial development planning requires, as one of the first steps, the systematic compilation of data on the quantity and quality of water available.

Water resources know no national boundaries and their optimal use requires international co-operation. This has been rapidly developing during the last few decades as a consequence of the growing feeling of interdependence and the desire for unity among nations.

The International Institute for Hydraulic and Environmental Engineering aims to contribute by providing study programmes that incorporate the best knowledge and most recent developments in the many aspects of water management.

The International Course in Hydraulic Engineering was established in 1957. From the very beginning the number and quality of the participants surpassed expectations. In carrying out the programme of instruction, warm co-operation was given by various institutions in the Netherlands.

The goal of the Courses is not in the first line academic, but professional. The basic philosophy is to show how modern theoretical developments can be applied in the practice of the design execution and operation of works. A long tradition in hydraulic engineering in the Netherlands has shown that the combination of newer theories with old experience gives the best

solutions.
The lectures are by no means the only vehicle in this process of transfer; laboratory and field measurements, practical observation periods and field-trips, all take an important place.

Successful formula

Small discussion groups are formed where the Course participants make special design studies with the aid of engineers who have dealt with the same problem in practice. In order to cope with this programme it was necessary to give the Course a duration of 11 months, and to organise it strictly on a Post-University level. This formula proved to be successful and gradually the Course expanded. Growing numbers made it possible to offer more variety in the Course programmes. (See Basic Data).
When the number of tasks performed by the Institute, where the Courses are held, increased, its name was altered. Since 1975 the institute has been known as "The International Institute for Hydraulic and Environmental Engineering". Notwithstanding the professional nature of the Courses there was from the beginning an urgent request from the participants and their employers that a final Diploma be given at the end of the Courses. Experience taught that it was not proper that somebody from a different cultural environment and educational system should come to a foreign country (to the habits of which he is not accustomed), study a full year on his own, and then be given the verdict of success or failure after the examination at the end of that year. Therefore it is necessary to give the participants intensive guidance during the whole year. Regular evaluation of the quality and methods of teaching, as well as of the participant's advancement, accompanies the entire study cycle. Exercise work and design assignments are given and checked. Especially during the first half of the Course, there are written examinations in several subjects, in order to detect any deficiency in the participant's preparation. This enables the participants to adapt and the faculty to improve their teaching. Where the course of studies chosen seems to be less suitable, this process will lead to an early withdrawal, or to the better adaption of the study programmes to individual needs. The Courses are terminated by a final examination, after which Post-Graduate Diplomas, in Hydraulic Engineering, Sanitary Engineering, Hydrology or Environmental Science and Technology are issued to those who are successful.

Instruction based on actual practice

The majority of the faculty members have their main work outside the Institute. This insures that instruction is based on actual practice. The Institute itself has a relatively small academic corps, consisting of 22 persons. Besides their teaching and research, they organise the Courses and co-ordinate

the work of the part-time lecturers.
This organisation, specialised as it is in development and environmental aspects of water resources, is also frequently called upon for other tasks. Of these, the shorter seminars and symposia deserve to be mentioned first. There is a distinct need for training of a shorter duration, in specialised subjects. Naturally, the scope of such short-term activities is narrower than that of the main Courses, and within a limited time one cannot go so far in the application of advanced theory. For training in management aspects and for highly spe-

The main building of the International Institute for Hydraulic and Environmental Engineering at Delft

cialised items there is still a scope for such seminars. In some cases, the initiative lay with the Institute itself, in others, the seminars were "tailor-made" following a request from an authority with training needs.(See Basic Data).
The research undertaken by the Institute's staff is concerned with development aspects of the environment and of water resources. The main items on which research is currently being done are: the application of microbiology to water

problems in developing countries, the use of computers for studying hydraulic systems, and methods for predicting the availability of surface water. Further, the Institute is very much interested in the creation of capabilities for teaching and research in water and environmental sciences in other countries. A number of research and development assignments have been carried out by the Institute in these fields, for governments as well as for United Nations agencies.

From 1957-1976 the Institute's teaching programmes have been attended by about 2500 engineers and other professionals from 97 countries.

A close liaison exists with organisations of the United Nations. Since 1962 UNESCO has sponsored the Institute in the framework of its international hydrological and environmental programmes. The Institute is a member of the Permanent Conference of UNESCO-sponsored long-term Post-graduate Courses. The World Health Organisation took an active part in the initiatives leading to the courses in Sanitary Engineering and in Environmental Science and Technology and still assists these programmes. The World Meteorological Organisation took the initiative for the enlargement of the International Course for Hydrologists and is now actively assisting this programme.

For the first time

Several of the major United Nations Conferences held in the last few years (Conferences on the Human Environment, on Human Settlements and on Food) have stressed the importance of water for development. In the year 1977 there will be for the first time U N Conferences on Water and on Desertification. Improving the plight of the poorest sections of the population in the developing countries requires supply of water for drinking and irrigation and an improvement of the environment. Developing countries have an increased interest in the engineering of the seas and the coasts, so that they can have a more equal share of the world's natural resources. There is, therefore, an increasing demand from developing countries and by international organisations for the services of the International Institute for Hydraulic and Environmental Engineering. More participants should be admitted to the existing teaching programmes, new teaching programmes should be added and, wherever possible, assistance should be given to the improvement of the scientific and educational infrastructure of the developing countries.

The Institute is prepared to undertake these additional tasks. It hopes that the necessary resources will become available in time.

Basic Data

Hydraulic Engineering

Purpose: Training and education in hydraulic engineering, based on both

practical experience and a good theoretical background. The course tries to transfer practical know-how in a number of specialised fields of hydraulics with a view to direct application.

Curriculum: The course comprises the following branches of study:

a River valley engineering
b Hydraulic works in deltaic areas
c Land and water development
d Experimental and computational hydraulics
e Tidal and coastal engineering. Branch e comprises two "packages": e^1: harbours, and e^2: coastal engineering.

The first term (October–March) is mainly spent in lectures and exercises. In the second term (March–July) the lectures become more specialised and decrease in number, whereas design work and fieldtrips come more to the fore. The third term (July–September) is spent in field observations, the rounding off of reports and a few additional lectures.

Admission requirements: A degree in Civil Engineering from a recognised university followed by at least three years of experience.

Course for Hydrologists

Purpose: Training and education for professional hydrologists, based on a good theoretical background. A wide spectrum of practical methods applicable for surface water, as well as for ground water are dealt with. Apart from hydrologists engaged in hydrological studies for project preparation, there is a distinct need for hydrologists engaged with the planning and operating of networks needed for the observation of hydrological parameters and the processing of data. Therefore the course comprises two different branches of study:

a Applied hydrology
b Operational hydrology.

If sufficient demand exists, a special hydrology programme destined for geologists and geographers will be organised.

Curriculum: The first term (October–March) is mainly spent in lectures and exercises. In the second term (March–July) the lectures become more specialised and decrease in number, whereas design work and fieldtrips come more to the fore. In this term also, work is done in the waterquality laboratory and on the interpretation of aerial photographs. A geohydrological fieldtrip to a mountainous region in Europe is made. The third term (July-September) is spent in fieldwork, the rounding off of reports and a few additional lectures.

Admission requirements: A degree in Civil Engineering from a recognised university followed by at least three years of experience. Alternatively,

holders of a M.Sc. degree in geology, geophysics, forestry or agricultural engineering can be admitted, if they have had several years of previous experience in hydrology and have a good background in mechanics and calculus.

Environmental Science and Technology

Purpose: To increase the competence for environmental work of chemists, biologists and similar professionals already working in environmental institutes. Study in depth of some selected topics will be combined with general reviews of environmental management needs.

Curriculum: Environmental chemistry and biology are core subjects from which a thorough understanding of ecosystems and their management will be developed. Special attention is paid to relevant segments of other disciplines such as mathematics, engineering, medical science and the social sciences. Work is undertaken in the laboratories and a number of field visits are organised. During the last term (July–September) a major study is carried out leading to a report or thesis.

Admission requirements: A specialised degree in biology, chemistry or related branch of science from a university of recognised standing and at least three years of practical experience in a field relevant to environmental management.

Sanitary Engineering (1)

Purpose: Training and education for Sanitary Engineers. The course imparts a good foundation in chemistry and microbiology. The main purpose is to show how this theory can be applied to designing works and installations for water pollution control and drinking water supply. Special emphasis is laid on conditions in densely populated, industrialised countries. In connection with this, the removal and disposal of domestic and industrial solid wastes and the control of atmospheric pollution are also considered.

Curriculum: The first term (October–March) is mainly spent in lectures, work in the laboratories for chemistry and microbiology, and exercises. In the second term (March–July) the lectures become more specialised and decrease in number, whereas design work and fieldtrips come more to the fore. In this term work is also done in the unit-operations laboratory and hydrobiological field measurements are undertaken. The third term (July–September) is spent in field observations, the rounding off of reports and a few additional lectures.

Admission requirements: A degree in Civil Engineering from a recognised university followed by at least three years of experience. University graduates in other branches of engineering may also be admitted, but only if they have had several years of previous experience in sanitary engineering.

Sanitary Engineering (2)

Purpose: Training and education for Sanitary Engineers. The course imparts

a good foundation in chemistry and microbiology. The main purpose is to show how this theory can be applied to designing works and installations for drinking water supply, and to the control of liquid and solid wastes. Special emphasis is laid on conditions in countries that are either in their agricultural or first industrial stage of development. In connection with this, much attention is paid to public health administration, control of vector diseases and tropical housing.

Curriculum: The first term (October – March) is mainly spent in lectures, work

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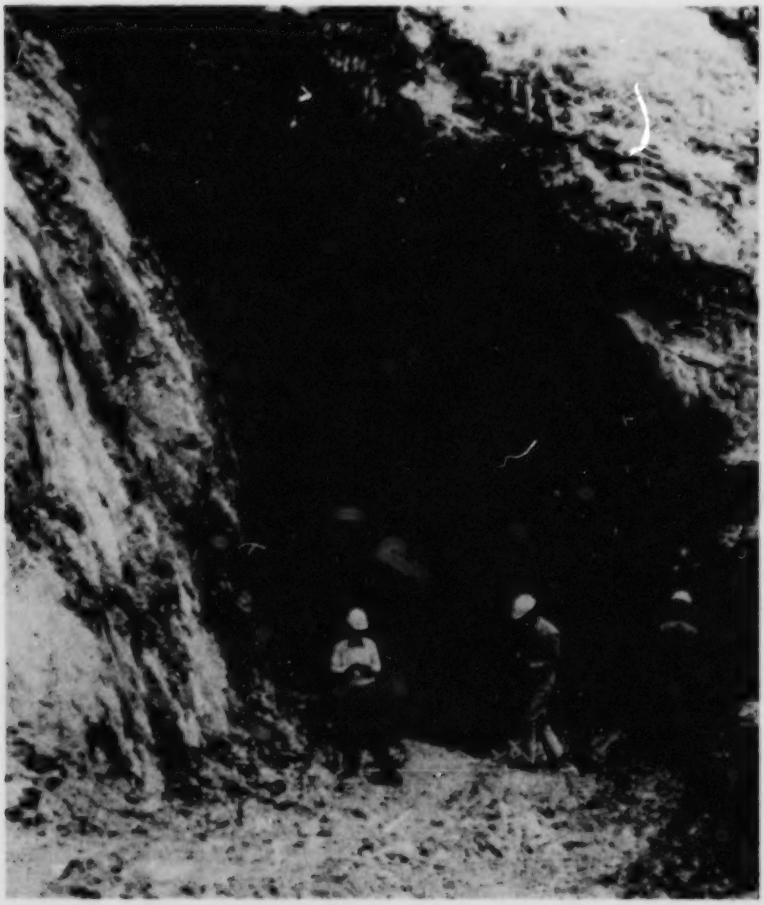

Fieldwork of IHE-participants in France

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in the laboratories for chemistry and microbiology, and exercises. In the second term (March–July) the lectures become more specialised and decrease in number, whereas design work and field trips come more to the fore. In this term work is also done in the unit-operations laboratory and hydrobiological field measurements are undertaken. The third term (July–September) is spent in field observations, the rounding off of reports and a few additional lectures.
Admission requirements: A degree in Civil Engineering from a recognised university followed by at least three years of experience. University graduates in other branches of engineering may also be admitted, but only if they have had several years of previous experience in sanitary engineering.

Seminar on Port Management

Purpose: To give additional management training to port directors or other leaders in port administration.
Curriculum: Three weeks are spent in lectures on management and operational aspects of ports, with special reference to labour, organisational methods and new ways of handling cargo. The ports of Amsterdam and Rotterdam each offer a one week's observation period. The other weeks are spent in observation visits to smaller ports in the Netherlands and to ports in N.W. Europe.
Admission requirements: To be holding a leading position with a port administration, or a similar private or government institution, and to have had at least ten years of practical experience in port work. Applications should be sent through the authorities for which the applicant is working.

Additional Data Seminar

Duration: The duration of the seminar is six weeks.
Approximate period: Spring.
Language of instruction: English.
Certificate: A Certificate of Attendance is awarded to those who actively attend all the Seminar's activities.

Additional Data Courses

Diplomas and certificates: Each of the eleven months' courses has its own Post-University Diploma which is equivalent to a Master's Degree. These Diplomas are awarded to those who have sat for the various examinations with success and have taken active part in all laboratory work, exercises and field trips for the entire duration of the course. Certificates of Attendance are awarded to those who actively attended all their course's activities, but did not sit or pass the examinations.
Duration: The duration of each course is eleven months.
Approximate period: October–September. Language of instruction: English.

Information about all courses: IHE, 95 Oude Delft, Delft, tel.: (015)133122.

ISS: The Institute of Social Studies at "Noordeinde Palace", the Haque

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In the period immediately following the Second World War, the Government of the Netherlands recognised the need to include Dutch Scientific Education in the general scheme of international co-operation and assistence. Further it was realised that the mere transfer in itself of existing technology and modern production methods would be inadequate and that it would be necessary to study the meaning of development and what it could lead to. A committee set up by the Minister of Education, Arts and Sciences in 1950 supported the view that a new type of faculty should be established to deal with the difficulties that countries had to overcome as they passed through a period of accelerated development.

Hitherto such problems had usually been studied by economists, sociologists and other experts in the light of their particular disciplines, although they were best considered as a whole from an interdisciplinary point of view. The committee was of the opinion that the Dutch universities, institutes of technology, etc would be unable to tackle such work unless special facilities were provided. Thus the Institute of Social Studies (ISS) was founded by the Universities of the Netherlands and gave its first course in October 1952. In March 1956 it acquired a charter as an independent Foundation with a Board of Trustees.

Varied range of courses

During the 1960s and the 1970s, the dissolution of the colonial systems caused the creation of numerous new nations, many of which had insufficient trained manpower and little more than embryonic Universities. The Institute of Social Studies, a pioneer in the field of development studies, was confronted with the challenge to provide training for high level manpower in a situation in which facilities in developing and developed countries were limited and rarely adapted to the necessary task.

The Institute has acquitted itself of this task by providing a varied range of courses, whose alumni are now to be found in most parts of the developing world. Altogether some 2500 students from 114 countries have attended courses at the ISS, representing a substantial contribution to development studies. Characteristic of the Institute is its international character–successive

generations of students have found one of the most positive aspects of their stay to be the opportunity to exchange views about the nature of concrete problems in an extraordinary wide range of other countries.

The Institute is also constantly engaged in research which is closely linked to its teaching programmes, and undertakes consultancy work on an *ad hoc* basis. Research reports are sometimes made available to a wider public through the publications described at the end of this article. The work of the Institute has two main aspects: interdisciplinarity and policy-orientation, resulting in

The ISS maintains an extensive Library and Documentation Division.

concerns which range from theory building to practical applicability. Its teaching and research activities take place both at home and abroad. Each year the teaching programmes at The Hague bring together nationals from about 50 countries, most of them in the Third World.

Period of transition

The Institute is now in a period of transition. The specific needs for middle level training in the Netherlands for which it was created have been largely met through its own efforts and those of similar institutions. It has always been the intention that the activities of the ISS should complement rather than duplicate those carried out either in the Third World or in other countries or institutes to which potential students have access. University development in the Third World has now progressed to the point that much diploma level teaching can be done there. Moreover, many other institutions in the developed world have followed the same path on which the ISS set out 24 years ago. In the present need to adjust and to specialise the Institute intends to retain at least one specific feature of its teaching programmes, i.e. the presentation to students of alternative methods by which to tackle the problems of poverty, inequality, discrimination and powerlessness in the contemporary world, thus enabling them to make a reasoned choice between possible alternatives. The Institute thus tries to increase the capability of the people participating in its programmes to analyse and to solve the particular development problems which they meet in their own countries.

In recent years the ISS has offered a programme leading to a Master's Degree, and nine Diploma programmes intended to provide training in various fields to mid-career post-graduates who are professionally engaged in those fields. Some of these programmes offer training in specific planning techniques set in the development policy context, others offer a broader orientation to the context in which policy problems emerge. The Institute's resources enable it to address itself to another important deficiency in manpower in these countries: the lack of experience in policy-orientated research, i.e. research that should be done in planning offices, labour organisations, peasant organisations, etc which could contribute significantly to the solution of immediate and long-term development problems.

Master's Degrees

To help alleviate this situation, the Institute has for many years organised programmes of study that lead to Master's Degrees, one in the Social Sciences with various specialisations, and another in Public Administration. Participants have been recruited mainly from among those who had gained an ISS diploma and then passed an entrance examination and were able to continue their studies for a further 10-month period.

A new 15-month Master's Degree programme is to be introduced in the academic year 1977/78, and will be developed as the major focus of teaching programmes conducted by the Institute in The Hague. The purpose will be to provide training opportunities for a small group of high-potential participants who can then play a creative role in developing training, research and policy work in the institutions of the developing world with a curriculum of a kind not generally available in their own countries. This programme will no longer be an extension of the Institute's diploma courses but will stand on its own. The academic year 1977/78 will be one of transition in which the ISS will provide both a 10-month and a 15-month Master's degree programme. During that year the new programme will be offered with only economic policy and regional planning as specialisations, plus a 'general' option. Other specialisations will be added to the package in subsequent years. After 1977/78 the 10-month Master's degree programme will be dropped.

Research

The research of ISS is organised around themes which have to satisfy most of the following conditions: (a) many continue ongoing activities in order to use previous intellectual and financial investment; (b) they must meet obvious and anticipated needs for research in the developing countries—new programmes are introduced to meet pressing needs as they emerge; (c) they must be sufficiently broad to group a variety of staff, both in terms of discipline and focus, and should encourage co-operation and the sharing of ideas. In line with these criteria the ISS is developing an integrated policy-orientated research programme built around a few broad priority areas. Much of the research work is also being carried out within the framework of joint research programmes that have been designed in close collaboration with institutions in developing countries.

The Institute will in future undertake the sponsoring of policy workshops which will bring together a small group of policy makers, researchers and academicians from developing and industrialised countries to engage in joint work in analysing crucial policy problems. The work of such groups will be an intensive exercise in research and analysis. They will produce policy reports which incorporate the results of recent policy research and critically appraise them in the light of practical problems of implementation. The two workshops to be held in 1977/78 will focus on national policies towards employment and income distribution and on policies in the area of rural development.

Overseas activities

The basic strategy of the ISS is embodied in the idea of 'continuous spin-off': the ISS, as a regular pattern, co-operates with institutions in the developing

countries towards launching and reinforcing teaching and research activities. The idea is to co-operate until the Institute's input can be phased out and the other institution can continue under its own steam. The experience gained by the ISS staff in these projects constitutes an important input into new initiatives. Several such projects have since that year become operational, while others are in different stages of preparation. At the moment the Institute has programmes overseas in co-operation with:

- Centre for Regional Development and Planning (CEDEPLAR), Federal University of Minas Gerais, Brazil;
- University of the Andes, Bogotá, Colombia;
- Latin American Institute of Economic and Social Planning (ILPES), Santiago, Chile;
- Ministry of Public Works, Caracas, Venezuela;
- Centre for Development Studies, University of Cape Coast, Ghana;
- African Training and Research Centre for Development (CAFRAD), Tangiers, Morocco;
- Faculty of Social Sciences, University of Indonesia, Jakarta, Indonesia.

Other categories of overseas activities in which the ISS staff participate are individual projects of development assistance, and technical assistance projects comprising short-term missions in support of long-term projects of

Three of the altogether some 2500 participants from 114 countries, who attended courses at the Institute of Social Studies.

institutional co-operation, as well as short projects or consultancies in response to requests from the Dutch Ministry of Foreign Affairs, planning organisations or UN agencies.
The ISS has made a considerable contribution to development studies in the past, but it realises its own limitations and the fast changing environment to which it must respond. To face the new challenge it is seeking flexibility, more direct involvement in work in the Third World, and the development of a research and action programme which will meet the most pressing needs of the mass of the population of the Third World.

Publications and library

The Institute publishes a quarterly journal, *Development and Change*; this is interdisciplinary and is concerned with problems of development. Recurrent themes include rural development, regional planning, the bureaucracy, educational and manpower policies, the transfer of technology, and the role of the multinationals.
Occasional Papers, an ISS series which provides a forum for preliminary reporting and discussion of work in progress at the Institute, are issued on an irregular basis. Occasional Papers are supplied to institutes of development studies over the whole world, usually on an exchange basis. Through the years, staff members have published numerous articles in various journals. A number of books on development problems have been published, while others are in course of preparation. A new venture is a series of Research Reports.

Basic Data

Postgraduate Diploma Programmes:
Yearly from October to May.

Economic policy and planning

This programme is intended primarily for university graduates with a degree in economics, business administration or engineering and interest or experience in planning work in, eg, central and regional planning agencies, sectoral planning units, central banks, development banks, ministries of finance; and for university lecturers in the field of development and planning. It is designed to deepen the understanding of major issues in development planning and for the study of planning at macro, sectoral, regional and micro levels.
The programme includes a set of core subjects on leading issues in development planning, the international economy, planning theory and comparative economic systems. Furthermore, macro-economic and project analysis specialisations may be chosen according to participants' interests. The macro-

economic specialisation includes: national income and input-output analysis; planning and forecasting techniques; mathematical model building; planning for growth, distribution and employment. The project analysis specialisation includes: analysis of investment projects; techniques of financial and economic project appraisal; theory and practice of shadow pricing.

International relations and development

This programme is intended primarily for internationally-orientated policy makers and planners, teachers and researchers, journalists and media specialists, staffs of foreign ministries and of international organisations. Its purpose is to promote the understanding of processes of and options for the development of both rich and poor countries in the perspective of contemporary international constraints and influences, with special reference to: the margins for collective and national self-reliance; control over national resources; science and technology; trade, aid and investment; arms production and arms trade; cultural relations and mass communication; restructuring of industrial societies. The curriculum includes the following: leading development issues in international perspective; theoretical approaches to international relations and related disciplines; development processes in particular areas and countries, and international strategies and policies for development.

Industrial relations and labour studies

This programme is orientated towards union, government and management officials, and to labour researchers and educators. Its concern is with major policy issues and it is therefore of value only to people in key policy-making positions or potentially in such positions. The programme is divided into two terms. The first consists of a common basic course covering theories of labour relations, sociology of industry, economics of labour, social and political framework of labour, labour legislation and administration. The second term permits specialisation on worker participation, trade unions, labour administration, employment creation and manpower studies. There is a field study, time for individual research, and optional seminar series going beyond the programme framework.

Development administration

This course is intended primarily for middle and senior level administrators/managers working in national or regional governments, public corporations, co-operatives; involved in the implementation or running of such programmes/projects, or in their planning and overseeing. The curriculum is designed to provide a framework for discussion of alternative organisational structures and procedures rather than to train participants in the application of specific techniques. Special emphasis will be laid on the management of projects and

programmes serving development goals.
Specific topics include: feasibility studies, appraising organisational and management aspects of feasibility; decision-making in programmes and projects; technical and market studies for projection selection; principles of social cost-benefit analysis and cost-effectiveness analysis; planning for programme/project implementation; organisational options for implementation; mobilisation of popular support for programme acceptance/execution; establishing feedback and communication systems; and the role and authority of the project organisation and its relationships with other government and non-governmental organisations.

15-month Master's Degree programme

Specialisations: Economic Policy and Planning, and Regional Development and Planning. The programme will be evenly divided between course work and a thesis. Core subjects will cover the Theory and Practice of Planning, the World Economy, Social Class and State Power, and the evolution of Development Theory. Each specialisation will consist of a small group of carefully selected participants who are expected to reach a high standard and should therefore provide evidence of their ability and potential. Candidates may be considered for a general programme without specialisation where their research interests correspond to the competence of the Institute's staff.

Admission requirements

Admission to all programmes is on a competitive basis.
Diploma programmes:
The normal requirements for admission to a diploma programme are a good Bachelor's degree plus several years of experience, whether in academic work, in government or in private agencies. Application for admission should be accompanied by transcripts of university study, a copy of each degree or diploma obtained, a certified statement of proficiency in English from a recognised authority, and letters of reference.
Master's Degree programme:
15-month programme: applicants should have a good academic preparation and should provide a detailed plan of the studies they wish to pursue, indicating their qualifications for such studies. Applications should be accompanied by copies of degrees and diplomas and transcripts of university study, a certified statement of proficiency in English and three reference letters from persons of high academic standing.

Information: Office of Student Affairs, Institute of Social Studies, Molenstraat 27, The Hague. Tel. 070–630550.

BIE: Courses in housing,building and Planning of the Bouwcentrum International Education

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Bouwcentrum International Education considers an integrated approach to the relationship of the built environment and of the goods and services used in it, as being essential. In 1958 the International Course on Housing, Planning and Building (ICHPB) and in 1966 the International Course on Industrial Quality Control (ICQ) were established. Both courses are on a post-graduate and post-experience level. The first course is concerned with the various aspects of human settlements, whereas the second course is concerned with the aspects of the quality of goods and services. Since then more than 1000 participants have followed the ICHPB's and 500 participants the ICQ's.
BIE has undergone considerable changes in the course of its 19 years of existence. Initially its courses were designed to transfer to professionals from the Third World the techniques and lessons of experience from the "modern" industry in the Netherlands and neighbouring countries. Gradually it moved towards a deeper interest in the development of human settlements, goods and services in the Third World under conditions of extreme poverty and rapid population increase. The current courses are based on the recognition that considerable improvements in the physical environment and distribution of goods and services cannot be expected unless new, innovative relationships are developed between the resource administrators and the users.
Important organisational changes will accompany the shift in educational focus. Up till 1977 the courses were organised in the Netherlands. The future policy is designed to achieve the above objective by assisting local professionals and others through regional and interregional activities.

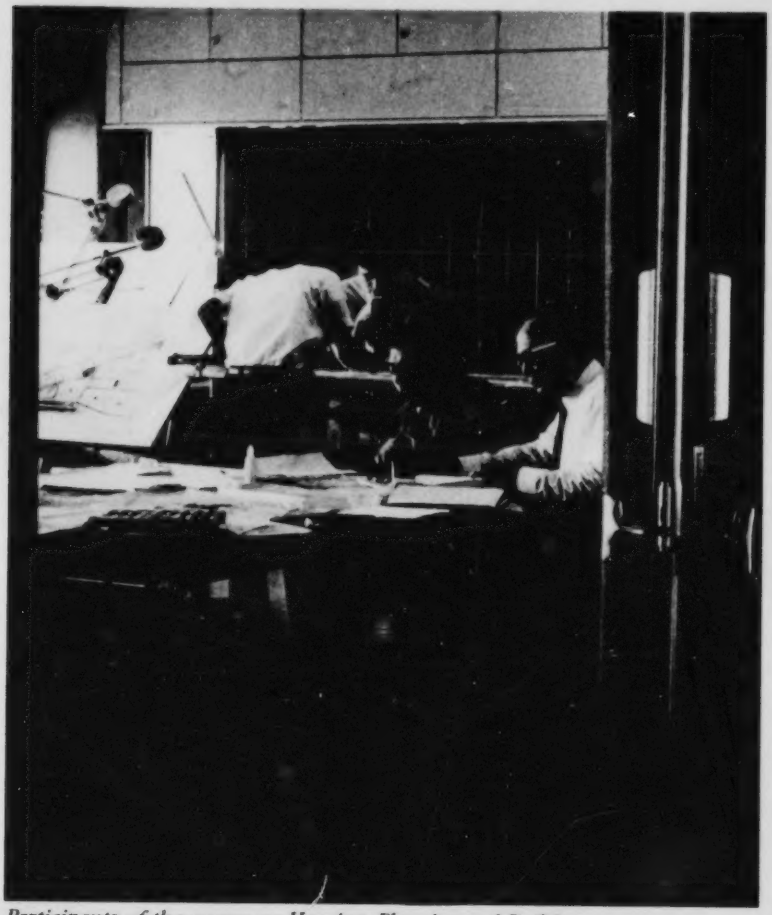
Future: Rotterdam supports

The core element of the future policy is the development of training programmes in Third World countries. For this BIE will provide assistance to local educational institutes to start new, or strengthen existing, programmes to reach a broad spectrum of participants from action-oriented agencies. In 1976 exploratory talks have been held in Ghana and Indonesia for "housing, building and planning" and to Sri Lanka for "integrated quality control". Governments of the countries visited as well as international organisations like UNESCO, UNEP and ESCAP have shown great interest in the proposed

action-oriented education projects. Each project will:

- cover a period of three to five years;
- aim at developing courses, as the main core of the educational programme, that will be continued by the local institutes;
- aim at developing local academic staff for the courses;
- develop a local library and information service as a support to teaching.

The main purpose of the activities in Rotterdam will become the support of activities in the Third World, especially the projects and the courses that will



Participants of the course on Housing, Planning and Building

be continued after the completion of projects.
The supporting activities will include:
- training academic staff members from the Third World for the projects and post-project courses;
- training academic and non-academic staff in skills for institutional development and managing educational and research programmes;
- collecting and arranging books, articles, slides, films and other educational and research material appropriate for each specific project.

As the central activity in Rotterdam ideas are being worked out for a 9-month course similar to the present 5-month ICHPB, but reflecting both the new educational focus (housing for and by the poor) and the addition of tasks in support of projects in the Third World.
The 4 areas on which BIE-HPB is currently focusing are policy, planning, design and construction. These are not seen as distinct disciplinary areas but as related phases of the processes by which housing services are provided.
Each area draws upon theoretical materials of traditional disciplines.
Policy and planning, for example, draw upon economics, political science, and, to a lesser extent, on other social sciences and applied mathematics.
Design draws principally upon architecture and somewhat upon the behavioural sciences. Construction draws mainly upon engineering, management, and materials sciences. These disciplinary starting points provide useful tools to approach issues of housing, building and planning in the real settings where they occur.
Problems of the poor in the field of housing, building and planning occur in 4 typical settings in the Third World. These settings are the
1. central areas of large cities;
2. fringe areas of large cities;
3. intermediate cities; and
4. small towns and rural areas.

While many problems are common to all of the settings, there are nonetheless typical issues that distinguish them. Issues of land tenure and property rights, building standards, the mechanisms and scope of participation by the poor in policy making, and provisions of housing related services by government, for instance, are peculiar to each of the settings.

Housing, Building and Planning

Programme: The major element is a series of workshops focusing on the following areas:
Housing policy: Two lines of approach to development and the role of

housing therein will be discussed. One is orientated to productivity and views housing as non-productive. The other is people-orientated and views housing as a basic human need.
Housing design: Design guidelines dealing with the progressive physical development of dwelling units and community facilities. Special emphasis is placed on housing for low-income groups where local construction adapts to social and economic changes. Study of "support environments", aided self-help techniques and site-and-service schemes.
Settlement planning-issues: Roles and characteristics of settlements, ranging from rural to urban, in situations of rapid development. The process of urbanisation, national and regional configurations of settlements, the internal structure of settlements. Primarily orientated at those without previous planning training.
Settlement planning-tools: Selected methods of physical planning appropriate for countries experiencing rapid growth. Primarily for those with some training in physical planning.
Building process management: Rationalisation and management of house-building processes for projects ranging from contractor-built to self-help. Proper utilisation of building materials and application of building methods will also be discussed.
Requirements for admission: a) degree at bachelor level from a recognised university or similar institute; b) engaged in work directly related to the field of the course concerned; c) a good standard of proficiency in English.
Medium of instruction: English.
Award: "certificate of attendance", "diploma" or "diploma with distinction".
Regional projects in preparation stage.

Integrated Quality Control

The main activities in this field in the near future are regional projects, which are in the preparation stage.

Information: Bouwcentrum International Education, 700 Weena, Rotterdam–3003.

ICEI: International Course on European Integration at the Dutch capital Amsterdam

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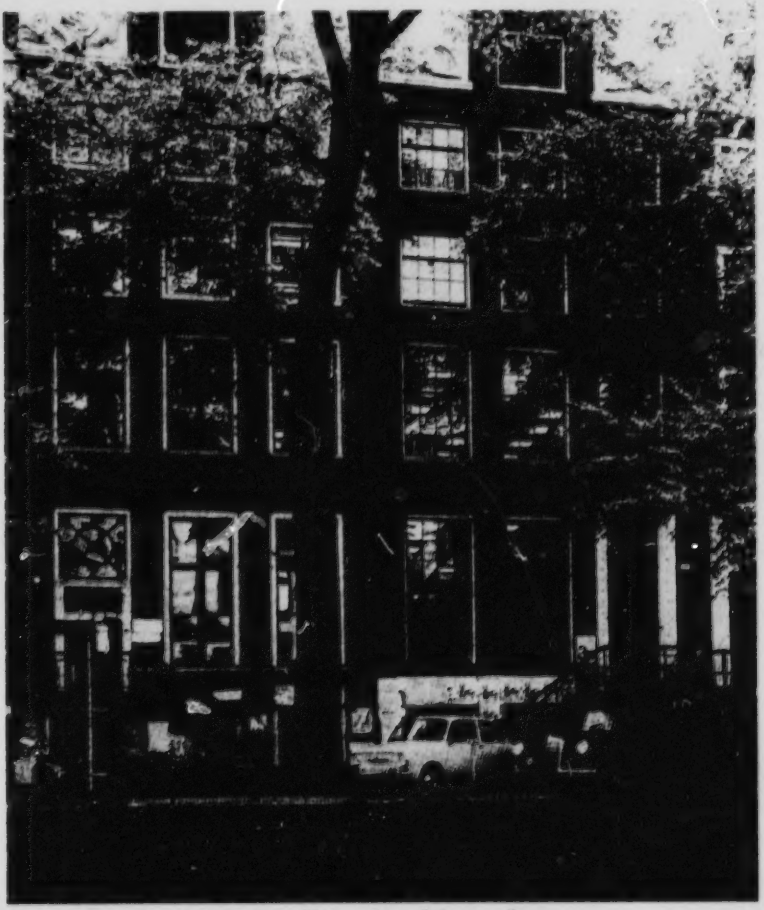
In 1965 the Europa Institute of the University of Amsterdam took the initiative in establishing an international post-doctorate course on European Integration, in the English language. The intention was to offer a scientific programme lasting about eight months to lawyers, economists and political scientists from member countries of the EEC and other countries linked to the European Community by political or commercial interests. The time was ripe because, following the ratification of the Treaty of Rome (1958), European integration had presented the academics concerned with a wealth of scientific problems, necessitating specialised study and constant scientific analysis.

The significance of the course for the developing countries has increased steadily with the years. From the beginning, in 1966, students from the developing countries have participated every year. The importance of the course for the Third World has grown especially since the signing of the Lomé Convention in 1975, when forty-six lands in Africa, the Caribbean and the Pacific Ocean—referred to as the ACP countries—concluded an agreement for co-operation with the European Community. Coming into operation on 1 February 1975, this treaty replaces earlier associative agreements. Thanks to this agreement the ACP countries receive financial support, have access to the European Market and can profit from the stabilisation of export prices for raw materials afforded by the Nine. One difficulty facing many developing countries is their lack of sufficient expertise to take the fullest possible advantage of the Lomé agreement. It is just here that ICEI would seem to fulfill, even more than formerly, a real need of the developing countries. Another reason why ICEI is of importance to Third World participants lies in the various attempts at integration now being undertaken especially in the developing areas. Third World students are thus coming to ICEI in Amsterdam in order to study the European model of integration. In the current year, 1976/7, Third World students comprise about a quarter of the total number. The expectation that this proportion will increase in the coming years is justified, though for the present the number of students from the developing countries is unfortunately limited to the number of scholar-

ships available. Happily, there are indications that the European Commission intends to establish a study-fund for students from the Third World.
The growing number of students from the developing countries has also had an influence on the study programme. In the legal syllabus, for instance, much more attention is now paid to the subject "The EEC and International Trade", with its inclusion of an analysis of the Lomé Convention. Moreover, the subject "EEC External Relations" has also been greatly extended and developed. Naturally, attention is also given to the possibilities for developing



The "Europa Institute" of the University of Amsterdam

countries outside the APC circle.
A clear picture of the growth of ICEI emerges from the steady increase in student numbers. While 1966 saw a start with 19 participants, the current course, 1976/7, began with 43. Regions of origin of all students from the beginning are indicated in the following classification:

EEC Member Countries	142
Developing Countries	74
Non-EEC European Countries	35
Eastern Europe	17
Others	81

The total number of countries represented here is 58.
The structure of the study programme is relatively simple: The course is divided into three sections, each section with its own programme. During the first two months introductory lectures are given by internal staff, some of which have an interdisciplinary character. The more specialised lectures during the rest of the year are given mostly by external teachers, both domestic and foreign. At the same time, staff teachers function here as tutors, and supervise the mandatory research activity of the participants.

Diploma

At the conclusion of the course, participants who have passed the exams with good results and whose research results are equally satisfactory receive a diploma. Due to the students' "research papers" the course has yielded, over the years, much research material, often of importance. The best papers are now published in the European Institute's half-yearly periodical, "Legal Issues of European Integration" (publisher: Kluwer, in Deventer), and "Occasional Papers" (own publication). Over the years an average of 87 to 88% of the students have gained their diploma.
A special activity of ICEI deserving mention is that of its two colloquia on "Euro-Arabian Relations" (1975) and "Association Treaties with the EEC and the entry of Greece and Turkey" (1976). For 1977, a seminar on "Europe and the World Monetary System" is in preparation.

Basic Data

The course is organised by: Europa Institute of the University of Amsterdam in co-operation with the Netherlands Universities Foundation for International Co-operation.
Aim: To provide post-graduates in law and economics with a thorough understanding of the complex problems of European integration; each discipline has a separate programme with a number of interdisciplinary lectures.

Programme: consists of lectures and seminars on major subjects such as: (law) common market law, doing business in the common market, international legal relations; (economics) economic policies of the EEC, economic and monetary union, external economic relations. There is a certain emphasis on the provisions of the EEC-Treaty in theory and practice and on the internal structures and dynamics of the European Community and its external relations. A considerable part of the teaching is done in the form of seminars with discussions based on extensive reading and on reports submitted by participants. Study-trips are made to European institutions and international organisations.

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Requirements for admission: University degree in law or economics or political science. Medium of instruction: English. Usual beginning and closing dates: second Tuesday in September and 30 April. Location: Europa Instituut, Herengracht 508, Amsterdam.

Information: NUFFIC, Molenstraat 27, The Hague. Tel. 070–630550. New address from September 1977: Badhuisweg 251, The Hague

ICHD: The International Course on Health Development at Amsterdam and Antwerp

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One of the most distinctive features of a less developed country is the deficiency in its state of health. Generally, the poorest groups of the population are the ones most burdened with this miserable condition. And this while—to quote Minister Pronk's memorandum on bilateral co-operation—"the right to good health is one of the fundamental rights of man; it forms moreover an indispensible pre-condition to socio-economic development and, therefore, to the realisation of other human rights as well".

It followed quite naturally, then, that training in health care found a place in the system of institutes and courses for international education established in the Netherlands after 1950, within the framework of assistance to developing countries. As was equally to be expected, the initiative of establishing an international course in this sphere was taken by those organisations possessing many years experience in health care in (tropical) developing countries, to wit: the Royal Tropical Institute, Department of Tropical Hygiene, Amsterdam, and the Institute for Tropical Medicine, Leiden and Rotterdam. Happily, moreover, effective co-operation already existed between these organisations and the Belgian Prince Leopold Institute for Tropical Medicine in Antwerp. Upon commencement of planning for the establishment of the international course of training this co-operation was immediately enlarged to embrace it. The Dutch-Belgian co-operation was of importance because it made the combination of the knowledge possessed by both countries available to the Course, that is, not only the resources of the involved organisations themselves, but also those of the universities connected with them. The overseas experience of the two countries is complementary: that of the Netherlands stems principally from long-standing contacts in Southeast Asia, that of Belgium with Africa. In an international course intended in principle for the whole world this mutually augmentative experience is of the greatest importance. In order to cover as large a portion of the Third World as possible it was decided to give the instruction in two world languages, namely English and French, in two parallel courses running concurrently. This decision to merge the resources of both countries worked out very well in another way, for it happens that the average Dutch teacher expresses himself much more readily in English, while a number of our Belgian colleagues prefer the

medium of the French language.
The courses were launched in 1964 as Diploma courses lasting five months and given alternate years in Amsterdam and Antwerp. From the beginning each course has had about ten participants. The arrangement of the syllabus precludes the admission of larger numbers, comprising as it does independent activity of the students, encouragement of teamwork, mutual exchange of experiences, good and effective student-teacher relations, and practical contacts with health care services, all of which play such vital roles.

From the beginning each ICHD-course has had about ten participants

Good health is the product of a complicated interplay of mutually interdependent influences. It is the result not only of bio-physical factors and medical resources but also, to a large measure, of the environment and the circumstances obtaining in cultural and socio-economic areas. These circumstances influence the manner in which medical capabilities may be applied and consequently the effect of medical science on health. Therefore, progress in furthering good health forms part of a total system of human development. The state of health can be improved, then, only if that total system and the interconnections between its various branches are taken into consideration. This holds for every level on which health problems are being tackled, the local, the regional, or the national, irrespectively. The general aim of the course, therefore, is to enable medical doctors to deal adequately with

problems in the field of planning and management of health systems in the context of a comprehensive development. In the realisation of this objective serious account is taken of two distinctive trends of thought perceptible in the world of health planning: that

- the improvement in the health situation is dependent on systematically planned work; and
- in primary health care, the involvement of helpers not originating within the medical profession as the first line of defense in health care (curative as well as preventive) must hold a central place.

Better medical techniques as such are all to the good, but in order to ensure that the fruits of the better techniques reach the mass of the people in town and country, organisational structures and a broader composition are necessary (with the participation of helpers from fields other than the medical).

Today and Tomorrow

From the establishment of the course in 1964 to the present day efforts have constantly been made to improve the syllabus and to fit it to the changing needs of the Third World. An important change was made in 1971, when a diploma course was elevated to one leading to the degree of Master of Public Health. Among the participants and their respective organisations a strong demand had emerged for the course to culminate in a Master's degree, and to adapt its level and duration accordingly. The proficiency of the average candidate justified this revision. The curriculum underwent a fundamental reorganisation: it was lengthened from five months to a full academic year, new systems of gradings and examinations were introduced and the standard tailored to the requirements of a Master's degree.

Recently, discussion has begun on the question as to how the potentialities of the course may best be directed to serve the needs of the developing countries and, even more than in the present training programme, might better be attuned to local and regional conditions in the Third World. Consideration is being given here to furthering research into the needs of a number of areas from which, for many years, important contingents have come (Southeast Asia, East Africa, French-speaking black Africa). When the resulting ideas have been tested into practice, training programmes will need to be designed specifically fitted to these needs. Obviously, what will also have to be looked into is whether the courses based on these findings can be given, wholly or in part, in the areas concerned. This would bring the training closer to the actual conditions, with all their attendant aspects and problems, and concurrently strengthen educational facilities in the developing countries. For

reasons of an organisational nature (in 1967, in Antwerp as well as in Amsterdam, supervision of the course passed into other hands), the fulfilment of these notions has been somewhat delayed. It is therefore not possible at this stage to publicise further particulars in the matter. However, it should be stressed that the present state of the course in Health Development is not one of quiescence, but, on the contrary, is a stage from which important changes may be expected in the coming years.

Basic Data

Organised by: Netherlands Universities Foundation for International Co-operation – General Department for Development Co-operation, Belgium.
Programme: An introduction will be given to sociology, economics, management and planning followed by an intensive learning of relevant methodologies such as biostatistics, epidemiology, operational research, etc. By means of these concepts and methodologies major tropical health problems will be analysed, actual experiences of the participants will be compared with them and the organisation, operation and evaluation of medical and health services will be studied. On the basis of a study project a final thesis will be worked out.
Requirements for admission: A university degree in medicine and at least four years of experience in developing countries and proven managerial responsibilities in medical and health services.
Medium of instruction and location: French in Antwerp, English in Amsterdam (two parallel sections).
Diploma: A Master's degree will be awarded to participants who have successfully completed their studies. Those who do not meet the requirements may receive a Certificate of Attendance.

Information: NUFFIC, Molenstraat 27, The Hague, or General Department for Development Co-operation, Marsveldplein 5, Brussels 1050, Belgium. (New address of NUFFIC from September 1977: Badhuisweg 251, The Hague.

ICFSN: The International Course in Food Science and Nutrition at Wageningen, Louvain and Ghent

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The International Course in Food Science and Nutrition (ICFSN) is one of the two Dutch Courses in International Education which are organised in co-operation with Belgian Universities. The other course is the Health Management Course. The universities which participate in the ICFSN are the Universities of Louvain and Ghent in Belgium, the State University of Utrecht and the Agricultural University of Wageningen.

The first course was held in Ghent in 1970; in succeeding years in Zeist, Louvain, Wageningen, Ghent, Wageningen and Louvain respectively. The above-mentioned scientific institutions are represented in the Board of Trustees which is ultimately responsible for the material offered in the project. In addition to these scientific institutions various Dutch institutions (The Central Organisation for Applied Scientific Research in the Netherlands (TNO)), The Netherlands Institute for Dairy Research, The Royal Institute for the Tropics, etc., and various international organisations such as FAO, WHO and UNICEF also make a definite contribution to the planning and execution of these courses.

Multidisciplinary approach

From the start the plan and content of this course have been fairly general, the main goal being to present the participants with a multidisciplinary approach to the food and nutrition problem manifest particularly in the developing countries. In recent years when evaluating the course in the Netherlands it was found that training aimed at more specific problem areas would probably be more desirable. This impression was borne out during an evaluation tour of a delegation of the Board of Trustees and a representative of FAO, who visited Southeast Asia in August 1975, the region from which most ex-students come. The conclusion which this delegation reached was that in many developing countries not much need is felt for a general course, but that there is great demand for specialised training at a high level. On the basis of this new development the Board of Trustees decided that as from 1977, and provisionally for a period of four years, the existing course will be converted into a programme with various main issues. Later in this article we will further discuss the future plan of the course. Firstly however it would

seem relevant to outline the motives for a course in Food Science and Nutrition.

Though it would seem superfluous to demonstrate the need for post-graduate training in the area of food science and nutrition, particularly aimed at the problems of the Third World, we feel we should nonetheless put forward certain arguments. We are forced into realising that in 1976 the number of people who suffer from malnutrition has increased rather than decreased in the past 20 years.

The following figures give some idea of the range of the problems:

Malnutrition: approximately 50% of all young children in developing countries suffer to a greater or lesser degree from malnutrition. This means that hundreds of millions of children are involved (see photo 1).

Ophthalmic disorders: every year some hundreds of thousands of children become blind as a result of shortage of vitamin A.

Anaemia: this problem is very wide-spread and is brought about not only by malnutrition but also by many other contributory causes.

Goitre: estimates give the figure of approximately 200 million people suffering from goitre.

In conclusion we may posit that the food and nutrition problem is at present one of the most serious situations with which the population of the Third World is threatened. The question thus calls for attention at all levels: from Governments and International Organisations, as well as from research and education. This NUFFIC International Education course attempts to make a contribution to solve the problem by means of training.

The programme in Wageningen will in the coming years be concentrated on the nutrition problems of the child. This is the most vulnerable category in the developing countries, and for this reason calls for most attention.

Training programme

In the framework of the course this subject will be studied from various angles. In the analysis of the problem the whole ecological environment in which the child grows up will receive special attention. The following activities are planned in the training programme: lectures, group discussions, seminars, practical exercises and demonstrations, excursions, and small, well-defined research activities among a Dutch group. The training programme for the coming years encompasses the following subjects:

Section 1.

Short discussion of a number of basic principles of food science and nutrition with special reference to their relevance for children.

Section 2.

Study of various forms of malnutrition, the causes and possibilities for

treatment.
Section 3.
In this section causes will be further gone into and the possibilities discussed which can help to solve the problems. Under consideration for this are subjects such as: population growth, the role of agriculture, culturally determined eating habits, information on nutrition, the value of local food for children, breast versus bottle feeding, specially prepared meals for children, nutritional aid, etc. The entire section 3 aims at contributing to a

An example of undernourished children. The child in the middle is a healthy normal child of 2½ years of age and weighs 11.5 kg. The child to the left of the picture is undernourished and the syndrome from which it suffers is known as kwashiorkor. This child is 2½ years of age and weighs 7 kg. The child to the right of the picture suffers from the malnutrition disease marasmus. He is 4½ years of age and weighs only 7½ kg.

more systematic approach to the problem. This should ultimately result in the formulation, by the various sectors and ministries responsible, of a rational food and nutrition policy.
From the above it may be concluded that the course possesses a strongly applied-scientific orientation, whereby the participants acquire a number of

skills, particularly in the area of setting up and carrying out research, reporting and policy formulation. In the case of intervention studies attention is devoted to the necessary evaluation techniques. Participants who successfully complete the course receive a certificate.

Relevance of training

It would seem worthwhile discussing briefly the relevance of training such as described above. We have already discussed the global problem of food and nutrition. We have not yet however gone into the wide range of activities, both of a multilateral and of a bilateral nature, which are now being set afoot to resolve this problem in the coming ten years. A few examples are:

- The "World Food Conference", which took place in Rome in 1974. A number of important resolutions were taken at this conference.
- The 30th "World Health Assembly", to be held in Geneva in 1977. The "Importance of national and international food and nutrition policies for health development" will be discussed.
- A wide range of nutrition programmes, having improvement in the nutrition situation as their goal, are included in the new strategy of the 30 year old UNICEF.
- A number of developing countries have already formulated a "National Food and Nutrition Policy". Implementation of this policy depends on adequately trained personnel.

From the above it is clear that the immediate demand is for qualified personnel, and this demand is especially great. This is one of the factors on which the success of the above activities depends. Up to now there are only a limited number of centres in the world which organise comparable programmes and which exchange information and experience. We are referring particularly to the material which it would be desirable for the course programme to offer and the training approach which is needed so that in the future sufficient numbers of adequately trained personnel will be available.

Basic Data

Themes of the following courses: 1977 (Wageningen) Ecological problems related to pre-school child nutrition; 1977 (Ghent) Traitement et qualité de produits alimentaires; 1978(Wageningen) Problèmes écologiques concernant la nutrition de l'enfant pré-scolaire; 1978 (Ghent) Processing and quality of food; 1979* (Wageningen) Appropriate food technologies; 1979 (Louvain) Application de la nutrimétrie dans différentes situations nutritionellées; 1980* (Wageningen) Technologies alimentaires appropriées; 1980 (Louvain) Application of nutrimetrics to different nutritional situations.

(* The topics for 1979 and 1980 are still provisional).

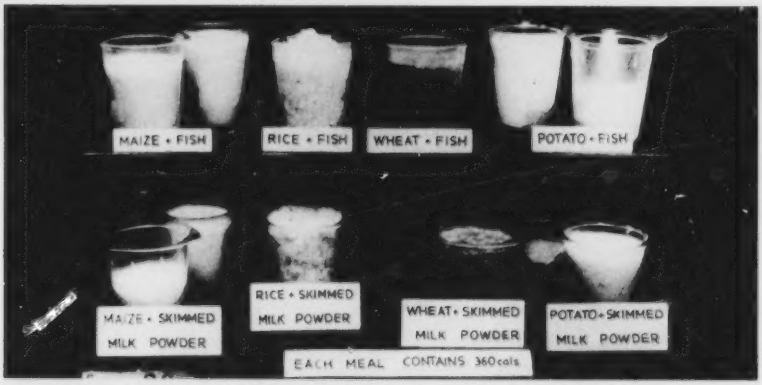
Goals:

Long Term:

- Improvement of the food and nutrition situation in the Third World by a multidisciplinary approach to various central problems.

Short term:

- The training of personnel in certain disciplines and from various developing countries who can pass on and apply what has been learned (dissemination).


MAIZE + FISH
RICE + FISH
WHEAT + FISH
POTATO + FISH
MAIZE + SKIMMED MILK POWDER
RICE + SKIMMED MILK POWDER
WHEAT + SKIMMED MILK POWDER
POTATO + SKIMMED MILK POWDER
EACH MEAL CONTAINS 360 cals

Examples of meals which are suitable for young children after the nursing stage (Photo Institute of Child Health, London).

Each course will in principle encompass the same basic programme, which will in turn be approached from different angles (Topic). Adaptation to the desires of the participants and to newly acquired insights will be possible. The basic programme of the course includes lectures, research projects, group discussions, seminars, practical work, exercises and excursions, which will be focused on the annual central theme. Each participant is expected to collect relevant documentation and data from his own country with respect to food production, preparation of food, food consumption and nutrition problems. This information constitutes the substance of a lecture which the course member gives to the group.

In principle participants from the whole Third World are eligible, provided they possess a sufficiently high level of education—at least a B.Sc.—and have had three years of experience. They should be persons who can be expected to be in a position to apply the newly acquired knowledge. Twenty participants can be accepted per topic programme. Enrolment date: Before 15 September preceding the course year.

Information concerning the course: NUFFIC, Molenstraat 27, The Hague (The Netherlands), or AGCD, Marsveldplein 5, Brussels 1050 (Belgium).

ISCI: The International Summer Course on Industrialisation

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The International Summer Course on Industrialisation is organised by the Netherlands Universities Foundation for International Co-operation (NUFFIC), in consultation with the Food and Agriculture Organisation of the United Nations (FAO). It is the aim of the course to give a deeper insight into the industrialisation process in general and the agro-based industries in particular.

The programme of the international summer course consists of lectures on subjects such as:

- statistics as a pre-requisite for planning, especially with regard to agricultural and agro-industry development including the food sector;
- international integration (possibilities and problems in developing countries with emphasis on the food sector);
- basic nutritional needs;
- aspects of development financing with special reference to the agro- and food industry sector;
- agriculture and industry as partners (patterns of agro-industrial development);
- feasibility studies with emphasis on food sector projects;
- country economic analysis; some considerations about project analysis and appraisal in food and agriculture;
- the development of agricultural co-operatives in the Netherlands;
- high yielding varieties; seed multiplication and certification;
- fertiliser industry development with emphasis on the food production sector;
- energy problems in agricultural production; development of agricultural tools, implements and machinery industry;
- pre- and post-harvest control and the necessity to promote crop pest and disease protection extension services;
- development of fermented foods;
- reduction of losses in storage at farm and village-level;
- marketing at regional level;
- trade flows;
- process industry (basic food processing industry);

- extension and education with emphasis on the food sector;
- farm management, farming system and related matters;
- production, processing and by-products utilisation of soya beans; development trend in new food products;
- processing of soya beans at small to medium scale level;
- production and processing of cashew and coconut;
- production, processing and by-products utilisation of oil palm products;
- flour and by-products processing and utilisation;

Participants of the International Summer Course

- bread, biscuits and other breadlike food products from non-wheat flours; cassava starch as a carrier for selected plant composite proteins;
- fodder crops; poultry industry development;
- sugar cane and irrigation.

The programme also includes visits to organisations, institutes and industrial settlements.

The course is open to government officials and other qualified candidates with some years of experience in industrial development problems concerning agricultural products processing, and related agro-industry development aspects. Candidates may be involved and actively engaged in socio-economic agricultural planning, storage and distribution, marketing and trade of agricultural products with emphasis on the entire food sector from farmer to consumer. Candidates should preferably hold a university degree or hold a position requiring an equivalent background.

Medium of instruction: English.

Usual beginning and closing dates: July–August.

Location: NUFFIC-building, The Hague.

Information: NUFFIC, Molenstraat 27, The Hague.
(New address from September 1977: Badhuisweg 251, The Hague.

IULA: Courses of International Union of Local Authorities

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Although about half the participants in IULA's international courses have received fellowships under the Netherlands technical assistance programme, it is only by courtesy that IULA may claim to be an element in the Dutch system of international education. For, although the Dutch Union of Municipalities (VNG–Vereniging van Nederlandse Gemeenten) and several Dutch cities are members of IULA–and indeed among the most active and valued of those members–all the same IULA is essentially an international association with members in all parts of the world. The training programme of IULA, therefore, is devised to reflect the wishes of a world-wide membership of cities and local authority organisations, among which the wishes of the Dutch members may from time to time have to be subordinate to the wishes of the majority of members, who come from other parts of the world.

Ever since it was established in Ghent in 1913 the primary objective of IULA has been to serve as a point of contact between people concerned with planning and administration at the local level, enabling them to share ideas and experience about every kind of activity affecting local government–physical and financial planning, administration for urban and rural municipalities, problems relating to traffic, housing, local taxation, credit finance, markets, sewers, conservation, pollution, leisure facilities, police, health inspection, schools, rubbish disposal–the list is endless!

Before 1947, when IULA moved its headquarters to the Netherlands and established itself under the wing of the "Vereniging van Nederlandse Gemeenten" in The Hague, the membership was almost exclusively European and North American, and most of the fruitful interchange of information took place from time to time at congresses held in one or other member city on these two continents. But in the 1950's and 1960's, as more and more Third World countries became independent and their local authorities sought to share the experience of municipalities in other parts of the world, new methods were needed to serve the requirements of IULA's new and potential members in the local governments of Asia, Africa and Central and South America. In the autumn of 1964 therefore, IULA ran an experimental course in comparative local government with the theme "Decentralisation for Development". This experiment, directed by the present Burgomaster of

Zutphen, Mr J.J. Roeters van Lennep, was so successful, and so obviously met a real need, that it was decided to set up a small training section and to recruit a full-time training officer.

500 participants from 82 countries

Since then 25 more courses have been run in this series, mostly with English as the medium of instruction and discussion, but on two occasions in French and twice in Spanish. The two courses in 1976 have brought the overall number of participants to 500, from no less than 82 countries. It is a little misleading to describe IULA's programmes as 'courses'; rather they are in the nature of 'staff college study tours'. The participants are not 'students' in the normal sense of the term; moreover, the intensive programmes are essentially practical and pragmatic, rather than academic and theoretical, although there are numerous study sessions. It is assumed that all the participants will be men and women with several years' practical experience: normally they are not accepted unless they are occupying positions in their own country in which they are already able to exert a direct influence on policy as regards local government or administration.

The view is sometimes expressed that it is nowadays a waste of money to bring people to Europe from Third World countries. What they can see in Europe has little relevance for their circumstances, it is argued, and if European expertise is needed it would be much more economical to send European experts out to the countries concerned, where they can present the fruits of their experience to many more people. The participants in IULA's courses, however, are already themselves 'experts', in that they have massive experience of local administration in their own countries.

Lectures only for the backgrounds

What IULA seeks to do is to provide these people with an opportunity to measure their own experience against the experience of fellow-practitioners in other parts of the world. Only a minimal part of the programme is occupied by formal lectures, and these are designed simply to explain the background of the institutions and organisations that are going to be studied. For instance, before visiting cities in, say, England, Germany and the Netherlands, it is necessary for participants to understand that English mayors and Dutch burgomasters are very differently appointed and have very different responsibilities; whilst in Germany, not only are the burgomasters in each area different from their English and Dutch counterparts, but also they are different from burgomasters in the other states of the German Federal Republic itself. Again, the electoral systems in these three countries are different, and have very different consequences. The same could be said of local taxation methods, police organisation, marketing systems, and many

more. So it is essential, before the visitors go to talk with local government officials and elected personnel in these or other European countries, that they have as clear an understanding as possible of the administrative, social and economic background of the various systems they will be observing.
The rest of each intensive programme is given over to two principal activities. Firstly, the participants visit at least three different European countries, observing local authority personnel on the job, and discussing with them (and also with those in central government or in training institutions concerned

A participant of the IULA-course gains his certificate.

with local government) their problems, their successes and their mistakes.
One of the few advantages possessed by administrators in the newly developing countries is the fact that they have not yet made many of the mistakes that have been made in the countries of Europe and North America; and IULA has found that local government officials, less preoccupied with image-building than their central government colleagues, are prepared to be frank and open about explaining how and why their policies have sometimes gone wrong, and how they have set about avoiding repetitions of past mistakes.
Secondly, the participants are given an opportunity to learn from one another. Obviously three huge tropical sea ports like, for example, Calcutta, Lagos and

Havana are likely to have many problems in common, yet it would be rare for local administrators from any of those cities to visit one of the others – and even if they did so, it would be difficult for the municipal officials to discuss their problems frankly and freely in the presence of their own local politicians. In the relaxed, neutral atmosphere of a IULA course, when they have lived and worked and travelled for several weeks with their colleagues from many different countries, a much more fruitful dialogue can take place. Thus, for example, we have heard engineers from Cairo and from Tel-Aviv discussing comparative methods of refuse disposal; or participants from Cuba and South Korea joining to challenge a remark made by a Tanzanian; all of them happily engaged as fellow-professionals in seeking better development possibilities for their countries, regardless of the unhappy political barriers that may separate them at home.

Finally the participants compile a joint report, which is published by IULA and often subsequently serves as a useful working document, since it is born out of many hours and days of hard work – often far into the night! – by a group of professionals with world-wide experience. IULA tries to keep its training programme as flexible as possible, in order to respond quickly to changing needs. At present we look forward to programmes in English, French and Spanish, designed to study fairly specialised fields (eg, food wholesale markets; local credit financing; urban transportation; pollution controls); and as far as possible to seek to help not so much the "élites" in the capital cities as the officials in the more remote towns and rural districts, where improved local government may well be the only effective means of bringing the fruits of economic and social progress in reach for the majority of ordinary people.

Basic Data

Every course has visited some local authorities in the Netherlands, and most of them have spent a whole week studying one of the 11 Provinces and its constituent municipalities.

Year themes of the courses

1964: Decentralisation in a developing nation. Countries visited: Sweden, Germany. 1965: Representative local government and national planning. Countries visited: Sweden, Germany. 1966: The Chief Executive in local government. Countries visited: Germany, England. 1966: Décentraliser pour Développer. Countries visited: Belgium, France, Yugoslavia. 1967: The representative element in local government. Countries visited: England, Germany. 1968: Role of the small authority in development. Countries visited: Denmark, Germany. 1968: Management in development. Countries visited:

England, Sweden, Germany. 1969: Development planning. Countries visited: Germany, Scotland, Denmark. 1969: La Planification pour le Développement. Countries visited: Morocco, Switzerland, France. 1970: Development finance in local government. Countries visited: Ireland, Germany. 1970: City Management. Countries visited: England, Germany. 1971: Municipal public utilities. Countries visited: Yugoslavia, Austria. 1971: Management of municipal finance. Countries visited: England, Germany. 1971: Role of local authorities in rural development. Countries visited: Ireland, Norway. 1972: Inter-municipal co-operation. Countries visited: England, Germany. 1972: Management of development finance and credit institutions. Countries visited: Belgium, Germany. 1973: The management of urban areas. Countries visited: Ireland, Germany. 1973: Management of development finance and credit institutions. Countries visited: Germany, England. 1973: Administration in local authorities. Countries visited: Austria, Switzerland. 1974: Managing the local environment. Countries visited: England, Denmark. 1974: Role of the local authorities in regional development planning. Countries visited: Germany, Ireland. 1974: Administración municipal y el desarrollo nacional. Countries visited: Spain, Germany. 1975: Training for local government. Countries visited: England, Sweden. 1975: Desarrollo y medio ambiente. Countries visited: Germany, Spain. 1976: Management of the local environment. Countries visited: Germany, Scotland. (Postponed) La Guestion financière du Développement et les Institutions de Crédit. 1976: Development of food wholesale markets and distribution systems. Country visited: Germany. 1977: Metropolitan planning and administration. Countries visited: England, Germany. 1977: Role of local authorities in rural development. Countries visited: Ireland, Norway.

PII: The Philips International Institute for Technological Studies at Eindhoven

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This institute was set up in 1957 to make a contribution to technical know-how in developing countries by offering post-graduate training to about 30 young engineers each year. The subject of the one-year course is predominantly electronics although candidates for allied subjects (illumination technology and industrial engineering are typical examples) can sometimes be accepted.

An important consideration underlying this operation is the fact that Philips in Eindhoven can give participants unique opportunities to acquire practical experience in addition to extending their theoretical knowledge. The availability of well-equipped laboratories and workshops is an extremely important element in the usefulness of these courses.

The tendency of professional electronic equipment to become less expensive (a result of, inter alia, the advent of micro-processors and the development of large scale integration in general) is helping to increase the possibilities of its application in developing countries and also the need for highly trained people who can direct others in its use.

To these opportunities for practical training the Philips International Institute adds a set-up consisting of a building with teaching, laboratory and study facilities and a core of permanent teaching staff and laboratory instructors; it also enlists the services of a fairly large number of experts from various parts of the company and sometimes from outside. As a result it can offer a programme of theoretical courses that closely follows the developments in technology and is permanently up to date. The laboratories in the institute are used to teaching participants the skills necessary to engage successfully in work in Philips laboratories outside PII.

Selection

In selecting candidates PII does not insist on a precisely defined level of knowledge: our minimum requirement is a Bachelor's Degree or equivalent (preferably in Electrical or Electronic Engineering) and we accept the fact that this can mean different things, depending on the country where the qualification was obtained. We do, however, try to increase the candidate's chance of a successful training period by requesting that he should have been among the

best students in his university. The final selection is always made by the staff of PII in Eindhoven: the National Philips Organisations all over the world assist in this final selection procedure to the maximum possible extent by providing additional information, often derived from personal interviews with the candidates.

An important element in our requirements is the candidate's age, which should not be above 30. It is based on the experience that people older than that usually have their university training so far behind them that it is too difficult for them to pick up the thread again. We sometimes make exceptions in cases where this fear is manifestly unjustified—research workers or university professors, for example.

Practical experience

On the other hand we do not require candidates to have had a specified number of years of practical experience: the idea behind the courses is to round off the candidates' studies and while some practical experience is very useful for that purpose it is not always absolutely necessary.

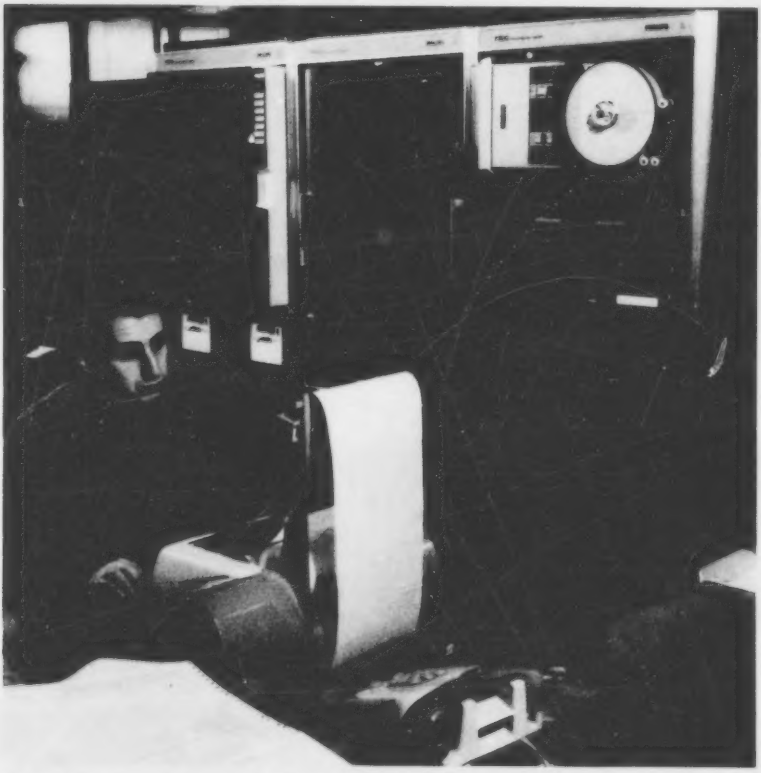
A further important requirement for admission is that applicants sign a declaration stating that they undertake to return to their home country and work there for a period at least equal to the period of stay at PII. In some cases the requirement can be waived or postponed, for instance when a good case can be made for further study abroad; this, however, is always an individual decision.

The historically oldest curriculum at PII is the Individual Programme (1 year). This is most often a practice-oriented programme drawn up in consultation with the staff of PII to suit the candidate's wishes and abilities. It might, for instance, consist of two half-year periods of work in two different Philips Laboratories and perhaps a small number of lecture courses at PII. A wholly theoretical Individual Programme is also possible. This structure allows considerable freedom of choice and adaptation to individual circumstances and is therefore also adopted in cases where students can for some reason no longer participate in one of the more formal courses described below. At the end of the year, if their progress has been satisfactory, students receive the PII diploma which describes the work done in some detail.

Master's Degree Course

The PII course leading to the degree of Master of Electronic Engineering is a much more strictly regulated one. The degree itself is awarded not by PII but by NUFFIC (Netherlands Universities Foundation For International Co-operation), who supervise the course through the intermediary of an Examination Committee consisting of professors from the three Dutch Universities of Technology. This sponsorship gives added prestige to the degree and guarantees

the high level of the curriculum and the examination. As a result, although official recognition of foreign degrees is still not very common in most parts of the world, our M.E. degree has proved a most valuable asset on many occasions.
The curriculum consists of a first semester of 5 months (January–May) of lectures, followed by a three-month period of practical work. After that another 2½ months of lectures are succeeded by a practical thesis period lasting 6½ months: the entire course therefore takes 17 months. The student



Participant at work in the laboratory for digital electronics

can express preferences with regard to the subjects for both practical work periods but the lecture course programme is fixed in advance and so are the examination requirements which have to be met in order to obtain the M.E. Degree. Those who start the Master's Degree course but are unable to meet the requirements may switch over to an individual programme as described

before.
Finally, PII offers a (1-year) course in Electronic Design Engineering (EDE) comprising a limited number of compulsory theoretical subjects and extensive practical training. EDE students are given a varied practical course in the laboratories inside PII to prepare them for work in Philips laboratories outside PII. This course has proved to be quite successful as a means for considerably improving the practical abilities of students who have received very little previous practical training. Those who meet the requirements obtain the Diploma of Electronic Design Engineer.

Conclusion

Over a period of nearly twenty years, students from over 60 countries have completed studies at PII. Their present occupations may give some indication as to the result of our efforts and the fact that our former students are relatively few in number has enabled us to keep our files up to date in this respect. Table I shows the result. The "brain drain" percentage in the last column may seem high but it is made up of a high initial percentage (up to 24%) and a much better result (7%) since the undertaking to return to the home country

Table I. Activities of former students (1974)

Deceased	Continued studies	Education	Government	Industry	Unknown	"Brain drain"
1%	5%	25%	19%	30% (9%)	4%	16%

was introduced. The relatively large percentage of former students working in Education is a clear indication that our hope of training the teachers is not an illusion. The number in brackets under "Industry" indicates the percentage of former students now working for the Philips company in their own country. We think that electronic technology is of vital importance to developing countries: its impact in fields such as communications, automatic control, medicine and many others is potentially large but depends critically on the knowledge and skills of those involved in its application. It is by providing part of the training of these people that we hope to go on making a useful contribution.

Basic Data

Electronics and allied fields

With the co-operation of: NUFFIC.
Financed by: Philips (substantially), Netherlands Ministry for Development Co-operation, UNESCO.

PII Eindhoven

Programme:

- curriculum for "Electronic Design Engineer" (50 weeks) comprises in addition to a restricted lecture programme very much laboratory and design work in P.I.I. and Philips laboratories.
- the programme for "Master of Electronic Engineering" comprises 8 months of class tuition and 9 months of laboratory work in and outside P.I.I. and Philips laboratories.
- students may also choose an individual programme consisting of subjects from the lecture programme and work in P.I.I. or Philips laboratories. The latter possibility may also concern non-electronic technologies of the Philips company (eg, illumination).

Requirements for admission: Academic degree in "electrical engineering" or "sciences". Age limit: 30 years unless the candidate works in a scientific function. Medium of instruction: English. Diploma: "P.I.I. Diploma in Electronic Design Engineering"; "NUFFIC Degree of Master of Electronic Engineering"; "General P.I.I. Diploma". Next course: January – December. Closing date for application: September 1. Tuition fee: none-P.I.I. students receive scholarships. Location: Eindhoven.

Information: Director of Studies, Philips International Institute, 2d Vestdijk, Eindhoven.

PITTC: The Philips International Telecommunications Training Centre, established at Hilversum

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This institute for international training–situated in Hilversum and known under the letters PITTC–was established in 1962 with the object of training people in the principle of telecommunications and the techniques employed in telecommunications systems. Telecommunications systems are a form of economic infrastructure which serves government, economic growth and social progress, and as such are of great importance to developing countries.

In the administration of countries, districts, cities and villages, governments and their officials are considerably aided by properly functioning telephone, telegraph and telex systems. Especially for remote country districts telecommunication is of great importance. Economic progress in many sectors is furthered by good telecommunications systems. Telecommunication is employed in agriculture, particularly for the purpose of disseminating information. Trade and manufacturing industry are dependent on telecommunication for a substantial part of their activities. Telecommunication is of course also of use for mining, drilling for oil, and the provision of energy supplies. Transport makes dual use of telecommunication: on the one hand as a substitute to expensive journeys and on the other hand as an aid to air, water and road transport. For social progress education and training are of importance for extending knowledge in all areas. Here too telecommunications can play a large part.

Know-how and documentation

Telecommunications services, such as Post Telegraph and Telephone services, do not invest only in apparatus and networks, but also need well-trained staff to install, operate and maintain the systems. As such, telecommunications services offer opportunities for work on a fairly wide scale.

The training courses organised by the PITTC in telecommunications in general, and in the management and operation of telecommunications systems in particular, are held both in the Netherlands and in developing countries. In the latter instance the institute provides aid in the form of know-how, documentation and other teaching materials which makes it possible to organise courses and sometimes even to found complete schools, as was the case with

respect to the Telecommunications School in Freetown, Sierra Leone, which was set up in co-operation with the International Telecommunications Union (ITU).
Sometimes, too, staff members of the PITTC are sent out as experts by the ITU or by the Department for International Technical Assistance (DITH) of the Dutch Ministry of Foreign Affairs to various regions where they help supervise the schooling of telecommunications technicians. This has been done in Manila, Bangkok, Khartoum, Accra and Maseru (Lesotho), for instance.

In the Netherlands courses are given in Hilversum and Huizen, since the necessary practical training can easily be obtained in these places. The institute distinguishes two types of courses: standard courses and project-orientated courses. Standard courses are intended for students from developing countries for whom a general orientation in telecommunications is necessary. Project-orientated courses are in the first instance directed at clients of Philips' Telecommunications Industry, who are mainly technicians from the Third World. Occasionally other people can also take part in these courses.

Tailored to specific demands

The difference between the standard and the project-orientated courses is that in the standard courses the general theories of telecommunications are dealt with, while the project-orientated courses are tailored particularly to the specific demands of a particular application. Standard courses, which are regularly given, cover the following areas of telecommunications:

- Transmission sending and receiving techniques
- High frequency sending and receiving techniques
- The house telephone
- The public telephone

All courses are given in English, though occasionally French courses are held for French-speaking people. Should language difficulties arise, a language laboratory is available.
Since 1965 DITH has by means of fellowships made it possible for many students from developing countries to participate in these standard courses. Course members are also enrolled for the standard courses by ITU. Since the PITTC is of the opinion that persons who come to the Netherlands should be given the best opportunities to acclimatise and to become acquainted with what is to them a strange environment, the students are preferably lodged with Dutch families who like the idea of having a foreign guest in the family for a fairly short period. This arrangement also to a large degree helps to counteract loneliness. To offset as much as possible the effects of a sedentary life and different food, one afternoon per week is reserved for sport such as gymnastics, volleyball, football and swimming.

Summarising, it can be said that a well functioning telecommunications network is of manifest importance for developing countries. Such a network is however only possible if the country constantly has at its disposal sufficient well-trained technicians of its own for operation, maintenance and repairs. In most developing countries possibilities do not yet exist for providing adequate training for technicians of this level and for staff for operation and maintenance. The PITTC meets this need by providing training in Hilversum for technicians at this level, so that on returning to their own countries they

Practical training of participants of PITTC

can assume the responsibility of guiding operation and maintenance staff and can also contribute to a higher standard of training in the already existing schools for telecommunications.

Basic Data

Telephone Switching (Public)
A. General Course in Public Telephony Systems (3 months).
B. Maintenance Course for PRX Systems (3 months).
Programme: Upon request. Requirements for admission: A. A tertiary education and training in electronics. B. Successfully finished the course mentioned under A, or: a tertiary education and training in electronics and automatic telephony techniques. Medium of instruction: English. Diploma: Certificate. Duration: See above. Next course: Upon request. Closing date for application: Upon request. Fees: Upon request. Location: Hilversum.

Telephone Switching (Private)
A. Electromechanical Systems
Type: UH. Programme: Upon request. Requirements for admission: Telephone technician with at least three years practical experience. Medium of instruction: English. Diploma: Certificate. Next course: First Monday in March or October. Duration: 3 months. Closing date for application: 1 February or 1 September. Fees: Upon request. Location: Hilversum. Information: Director of P.I.T.T.C., P.O. Box 32, Hilversum. Tel.: 02150–92498.
B. Electronic Systems
Type: EBX. Programme: Upon request. Requirements for admission: Bachelor degree (electronics) or experience with digital electronics and general telephone knowledge. Medium of instruction: English. Diploma: Certificate. Next course: Upon request. Duration: 3 months. Closing date for application: Upon request. Fees: Upon request. Location: Hilversum.

HF Transmitting and Receiving
Description: General introduction to radio communication. Programme: Upon request. Requirements for admission: Radio technician with at least three years practical experience. Medium of instruction: English. Diploma: Certificate. Next course: First Monday in March or October. Duration: 3 months. Closing date for application: 1 February or 1 September. Fees: Upon request. Location: Hilversum.

Telegraph Exchanges
Description: Data/telex switching. Type: DS. A. Hardware Maintenance Course DS 714 (4 months); B. Programming Course DS 714 (5 months).

Programme: Upon request. Requirements for admission: A. Experience with the maintenance of electronic/electromechanical equipment in a communication centre, preferably in the telegraph network; B. B.Sc. degree in electronics or at least three years practical experience in software, assembler language or two years experience in real time programming. Medium of instruction: English. Diploma: Certificate. Duration: See above. Next course: Upon request. Closing date for application: Upon request. Fees: Upon request. Location: Hilversum.

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A staff member of PITTC gives instruction

Transmission

Description: General introduction to transmission line systems, voice frequency, telegraphy; carrier telephony. Programme: Upon request. Requirements for admission: Radio/Telecommunication technician with at least three years practical experience in telecommunications. Medium of instruction: English. Diploma: Certificate. Next course: First Monday in October. Duration: 8 months. Closing date for application: 1 September. Fees: Upon request. Location: Hilversum.

Information: Director of PITTC, P.O. Box 32, Hilversum. Tel.: 02150–92498

RNTC at Hilversum: Radio Nederland Training Centre

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The Radio Nederland Training Centre provides practical training in the techniques of radio-production, with emphasis on the planning, writing and production of educational and informative programmes. Exercises are recorded and played back for assessment. Great attention is paid to the necessity for teamwork. In order to be able to communicate with an audience the Radio Nederland Training Centre considers it imperative that the members of a production team should be able to communicate with each other. During the period of a course, therefore, every member works on a wide range of jobs. It is the task of the Centre to supply a certain amount of basic know-how in the fields of public education and information and the various programme forms through which such intelligence may be passed on.

Radio Course

The RNTC Radio Course offers a general, all-round, practical (as opposed to theoretical) training in informative and educational broadcasting to young men and women with a minimum of two years' experience on the programming side of radio.

The course is conducted throughout in English and evidence of a high standard of fluency in that language is an essential requirement. The importance of fluency in the language of the Course is already experienced during the opening weeks, when much of the ground covered is of a journalistic nature: writing talks, editing and summarising lengthy texts, rewriting passages into radio language, for instance.

These assignments, in common with those that follow throughout the entire course, are voiced in the studio, where participants are helped on matters of presentation and microphone technique. Then comes practice in arranging and carrying through such "outside" assignments as tape interviews and reports, which are subsequently cut down to desired length in the Centre's small radio studio where the range of equipment, though very modern indeed, is deliberately restricted so as to present a challenge to the student's inventiveness, imagination and organisational ability. Intensive training in the uses of music and the compiling of news-bulletins of various lengths rounds off the first 6-week period.

Teamwork is a constant feature throughout the remainder of the Course, which takes in the magazine, the documentary and feature programmes for a rural audience, and the dramatisation of information. These group projects are carried out under the guidance of prominent specialists (from the United Nations Food and Agricultural Organisation, for instance) and largely deal with the sort of subjects the trainees would normally be concerned with in their own countries. The last exercise is a 6-hour "live" transmission, planned and presented by the participants themselves and including all the "elements" dealt with in the course.

To say no more than that, however, would be to overlook several of the most beneficial features such as:

the emphasis laid from first to last on knowing, researching and catering to one's audience;

the constant need to acquaint oneself with all available sources of information;

the extra-curricular instruction given to individual trainees on aspects that are not or cannot be included in a course of this nature and this length;

and the joint excursions and social activities that see to it that Jack and Jill are not dulled by all work and no play.

We are, after all, helping to train human broadcasters, not mechanical robots. But quite as important as any of the foregoing, we feel, is the function of the Centre as a meeting-place where students from many young countries may exchange experiences and viewpoints on the various aspects of public approach; and, in doing so, sharpen each individual trainee's awareness of his or her audience's specific needs, adaptability, tastes and preferences.

Television Course

The Television course at the RNTC is designed to help programme makers working in the informative and educational field, to better serve the development of their countries.

Throughout the course emphasis is laid on creating programmes, which may help stimulate viewers towards a greater awareness and understanding of their own countries and the world around them.

To this end students are first made familiar with the basic tools of television cameras, microphones, switching panels, using effects with the use of chromakey, lighting etc. ... Right from the beginning of their training they are taught how to make use of these tools to put across simple programmes, and learn to tell a story in visual terms.

In order to stimulate the imagination and inventiveness of the students to achieve the best results with the simplest means limits are sometimes purposely imposed on the kinds of equipment used for any one programme.

The trainees are also introduced to the use of filmed material and are taught the basic rules of film-making. They first make simple film reportages of out-

side events. Later they make more extensive filmed impressions or reports. They are taught how to use filmed material in combination with a studio production of a feature or documentary type. This also includes the important task of learning how to write "words to pictures".

More complicated productions

Furthermore in the last phase of the course, film and electronic techniques are integrated in more complicated productions, and students are given the chance to learn how to dramatise certain information in order to produce more effective and attractive programmes. In all exercises considerable stress is put on the importance of teamwork—an essential ingredient in the making of good television programmes; for this reason trainees actively participate as directors, assistent directors, script writers and presenters. These courses are not designed to train operational staff, such as camera-men, sound-engineers, vision mixers and so on.

Nevertheless—especially in the early stages—students are expected to operate cameras and other equipment in order that they may possess a better understanding of other people's jobs within the production team.

Since directing, script-writing and presenting involve the use of language, it is absolutely essential that students should be able to speak fluently the language of communication (ie, English) during a course.

Basic Data

The courses are given twice yearly: from February until June and from mid-August until mid-December. In both the radio and TV courses, the teaching is intended essentially for programme makers. Although it is not meant for technicians or operating staff, it does introduce students to the use of equipment and the importance of teamwork. All the courses are given in English and a very good spoken and written knowledge of this language is therefore indispensable.

Applicants for these courses must have: a certificate of education equivalent to a diploma at the end of secondary education; a very good command of written and spoken English; two years' full time experience in radio or television programme making in one of the developing countries; a guarantee on the part of the present employer to re-employ the student immediately after termination of the course; they must also be less than 35 years of age.

Information: Radio Nederland Training Centre (RNTC) of the Dutch International Short-wave Broadcasting Service. Address: P.O. Box 222, 55 Witte Kruislaan, Hilversum. Tel. (035) 47779.

RVB: Delfts' Research Institute for Management Science

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The Research Institute for Management Science was founded in 1952 by two professors of the Delft University of Technology. Its original aims were: to lend assistance to smallscale industry in The Netherlands, by offering advice and making the results of research available; and to give students of Delft University the opportunity to acquire theoretical knowledge of management techniques and their application in practice in small and medium-sized Dutch undertakings. Action was taken as long ago as 1955 to place the knowledge and experience so gained at the disposal of industrial development in Third World countries.

A training programme, called the Kursus Beheer Kleine Bedrijven (Course in Small Business Management, BKB), was designed, embodying four essential basic conditions:

- The level must be post-graduate (Bachelor's degree as minimum admission requirement);
- the training must comprise a large measure of practical work;
- the duration of the programme must not exceed six months (to minimise any possible "brain-drain");
- the language of instruction should be English (to cover as much as possible of the Third World).

All study-programmes were to be given by the R V B (Research-Instituut voor Bedrijfswetenschappen–Research Institute for Management Science).

The first BKB course was launched in the academic year 1955/56: there were 13 participants. Initially, one course was given annually, but, due to growing interest, it was decided as early as 1959, in consultation with the Department for International Technical Assistance, to organise two courses a year.

Special programmes

In 1967, again in consultation with DITH and NUFFIC, the course programme was broadened to two double (concurrent) courses and, for the sake of clarity, the name was changed to the Small Scale Industries Management Course (SSIM).

Following suggestions and advice from alumni and international organisations, such as UNIDO and ILO, a complete restructuring of the programme was

initiated in 1970. The revised syllabus was introduced in January 1972, under the name Advanced Training for Industrial Management (ATIM)
The hallmark of this training is its flexibility. Within the programme as a whole a number of so-called special programmes are incorporated, which enable participants to make choices fitted to the needs and insights for which their homeland organisations came into existence. The special programmes are:

- General Management;
- Industrial Extension Officers' Training;
- Marketing Management;
- Production Management; and
- Management Accounting.

It should be noted here that only two or three of these special programmes are offered per course. The course lasts 22 weeks. Including the current 9th ATIM Course, a total of 920 students have participated in 38 courses on management (BKB, SSIM and ATIM) so far. Clearly, through this development, the emphasis has come more and more to lie on activities directed to the needs of the developing countries.

"Eye-opener" character

Over the years (from 1955 to about 1964), the efforts exclusively directed to the Netherlands – such as research into and for the benefit of Dutch small-scale industry, the training of Higher Technical School apprentice counsellors, or of Business Organisation Assistants (BOA) – have been steadily reduced. The BOA training has been taken over by the Netherlands Institute for Efficiency, now known as the Netherlands Association for Management, and the Rijksnijverheidsdienst (RND) (State Service to Industry).
In 1968, following internal consultations, an extension of training activities began, into an area closely linked to that where RVB had worked until that time, namely, regional industrial development. The first course for "Regional Industrial Development Executives" was launched in the second half of 1969. It was principally intended for those carrying out regional development plans, seconded from government organisations, development banks etcetera, and lasted 18 weeks.
While the content of the course underwent some changes over the years, its so-called "eye-opener" character, paramount in the beginning, was for the most part retained. Because regional industrial development in the meantime has come to be generally accepted as one of the possibilities (perhaps even one of the preconditions) of economic development, adaptation to this evolution now has priority. A plan for restructuring is now being prepared, in which more attention will be paid to enlarging knowledge of applicable techniques.

Including the current RIDE course, 197 people from developing countries have attended the 14 courses, which now last 20 weeks and are held twice a year.

Also course for APO

Alongside the existing ATIM and RIDE courses RVB organises, also in Delft, once every two years a three-months course for the Asian Productivity Organisation (APO). Some six years ago this organisation, head-quartered in

Practical training of students of the RVB.

Tokyo, requested RVB and DITH to organise and finance a course for graduates of their own schools and universities. These graduates, coming from the thirteen member-countries of APO, are thus given the opportunity to renew and extend their knowledge in non-Asian surroundings. Thirty-three

people have participated in the three courses organised so far. A fourth course was scheduled for Autumn 1976.
The great strength of these international courses, to a considerable extent the source of RVB's reputation as training institute in the developing countries and with international organisations, lies in the large measure of practical work in the syllabus. In addition to practical exercises, simulated assignments and other realistic problems, much time is spent on visits to commercial and industrial sites. The participants are required, jointly and individually, to complete a short apprenticeship, either in commerce (ATIM and APO) or in industry (RIDE), where a practical problem is studied (progress-chasing, analysis) and as far as possible solved, and on which a report must subsequently be written.
A development in RVB which coincided with the evolution of the educational programme in the Netherlands, and which is considered indispensable, is that of the co-operation with DITH and other international bodies on their short missions, surveys and projects. Thus it came about that, even before the transfer of sections of the international training to the Philippines won great attention – attention now also being paid by the ministers for Development Co-operation, Education and Science, and Agriculture and Fisheries – RVB had already collaborated on the preparation, effectuation and guidance of the "Red, White and Blue Project" in the Philippines in the years 1963-1969.

Foundation institute in Manila

This project led to the foundation of the "Institute for Small scale Industries" in Manila, functioning so far with success. A division of the University of the Philippines, it is engaged in teaching and seminars in industrial management and regional industrial development, and as consultant to undertakings and development bodies. During this same period, from 1966 to 1968, two of RVB's fellowworkers set up a training programme for field consultants, using many sections of the Dutch syllabus and subsequently put into operation in the Brazilian towns of Sao Paulo, Belo Horizonte and Recife.
Similarly, in 1973, and in agreement with the then only partly formulated ideas of the ministers, a start was made on the design of a project the subject of which was "Agro-Based Industrial Development". In this context contact was sought with international bodies such as UNIDO, ILO, FAO and EDI, as well as with DITH.
One way and another, the result is a project conducted for the benefit of member-countries of ESCAP (Economic and Social Commission for Asia and the Pacific) in Petaling Jaya, Malaya. The first course, lasting three months, began on 1 March, 1976, with 21 participants, seven from Malaya, five from Indonesia, five from Sri Lanka and four from Thailand. Four other

member-countries are to be invited to propose candidates for a subsequent regional course. A second project now in preparation, and stemming from the ATIM course, will be carried out in Lima, Peru, with the Servicio Nacional de Adiestramiento de Industria y Turismo (SENATI) functioning as counterpart body.

More direct contribution

As noted earlier, participation in or conduct of this type of project by RVB is regarded as essential, for two reasons: the opportunity to make a more direct contribution to the socio-economic progress of the developing countries; and to gain experience in the situation of and circumstances in these countries, with an eye to using it in the conduct of the courses in the Netherlands.

The activities of RVB may be summarised as follows: the conduct of training programmes in the Netherlands (ATIM, RIDE, APO); instructional projects in developing countries (ABIDC Malaya and SENATI Peru); and co-operation in short missions and surveys for Dutch and international bodies.

For the performance of these activities RVB has a staff of 15 scientific and 13 administrative/technical personnel at its disposal. RVB's activities are subsidised by the government via the NUFFIC budget. It receives a bursary for each pupil, made available for the most part by the Fellowships Bureau of DITH.

Over the last twenty years RVB has built up a good reputation in the developing countries. Many a government official, dedicated to the promotion of industrialisation and the fostering of small enterprises, has been trained here; more than 1,100 in fact, from 74 countries. In this manner, and in the other ways indicated (projects, missions), RVB aspires to contribute to the diminution of the gulf separating rich and poor nations, and, at the same time, to assist in the realisation of the aims laid down in the resolutions of the UNIDO Conference in Lima, directed to increasing the developing countries' share in world industrial production to 25% by the year 2000.

Basic Data

Advanced Training on Industrial Management (ATIM)

Objectives: To provide professional training to managers, management consultants and industrial promotion officers from developing countries with the aim of promoting industrial development in those countries using their own human and natural resources (self-reliance).

Particulars: For part of the programme participants must choose one of the following subjects for their special programme: 01 General Management,

03 Marketing Management, 04 Production Management, 05 Financial Management, 06 Industrial Extension Officers Training (EOT).
Duration: 22 weeks.
Frequency: Twice a year.
Start: January and July.
Venue: Delft, the Netherlands.
Course language: English.
Number of participants: 40 (maximum).
Award: Diploma or certificate.

Agro-Based Industrial Development Course (ABIDC)

Objectives: To alleviate the shortage of trained manpower hampering effective development of agro-based industries and to assist in the establishment of training facilities in the field of agro-based industrial development, both on a regional and a national level.
Particulars: The course will be implemented in the ESCAP-region for personnel from ESCAP member countries. Under the technical assistance programme of the government of the Netherlands, the Agro-Based Industrial Development Course (ABIDC) is designed by the Research Institute for Management Science (RVB), the Netherlands, and will be conducted jointly with the National Institute of Public Administration (INTAN), Malaysia, in close co-operation with the Food and Agriculture Organisation (FAO), the International Labour Office (ILO) and the Economic Development Institute (EDI). Fellowships will be made available by the government of the Netherlands. Fellowships may also be provided by the international agencies and/or third parties.
Duration: 13 weeks.
Frequency: Not yet decided.
Start: The first course of this type started on 1 March, 1976; the next courses will be announced separately in those countries from which participation is invited.
Venue: Petaling Jaya, Malaysia.
Course language: English.
Number of participants: 20.
For admission requirements and further particulars of the Malaysian course please contact the Malaysian Embassy/High Commission in ESCAP member countries, or directly the Institut Tadbiran Awam Negara (INTAN), (National Institute of Public Administration), Jalan Ilmu, Petaling Jaya, Malaysia. Cable: INSTITADBIR.

Regional Industrial Development Executives (RIDE)

Objective: Dissemination of knowledge and skills pertaining to stimulation

and execution of regional industrial development.
Target group: Persons from developing countries who are engaged in: regional development and planning, promotion of industrial development, regional and local development boards, industrial extension services, regional and industrial development training institutes, other government agencies or private enterprises involved in the above-mentioned activities such as government ministries, development banks and development finance companies.
Duration: 21 weeks.
Frequency: Twice a year (first half and second half of the year).
Venue: Delft, the Netherlands.
Course language: English
Number of participants: 20 (maximum).
Award: Diploma or certificate.

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Industrial Management and Consultancy

Objectives: To widen the experience and to increase the resourcefulness of management consultants by exposing them to modern managerial concepts and methods applied under conditions different to those in Asia.
Particulars: In order to provide member countries of the Asian Productivity Organisation (APO) with the opportunity of training outside Asia, training facilities were made available to APO in 1970, 1972 and 1974 through the kind assistance of the Netherlands government. Based upon the results of these courses, RVB has developed the present course in co-operation with APO. It will offer participants the opportunity of refreshing as well as upgrading their knowledge. Emphasis will be placed on widening the participant's outlook in the field of management and consultancy rather than on intensifying knowledge in his own speciality.
Duration: 13 weeks.
Frequency: Irregular.
Start: The course starts in September.
Venue: Delft, the Netherlands.
Course language: English.
Number of participants: 15.

Information about all RVB-courses at Delft: RVB, P.O. Box 143, Delft. Tel.: (015) 561100.

Each year about 1,400 persons from abroad follow specialised training in the Netherlands under what is called, here in Holland, International Education (IE). On average four out of five come from a developing country. Practically all of them have had a basic university education, have already acquired practical experience and will be returning to practise their profession in their own country. These are in fact requirements for registering for a course since what is given is, in most respects, supplementary training at post-graduate level.

Seventeen Institutes and Courses offer a varied combination of specialised subjects to be taken and this book gives information about them. It has been produced by the Netherlands Universities Foundation for International Co-operation (NUFFIC) in collaboration with the largest of the IE institutes, the International Institute for Aerial Survey and Earth Sciences (ITC). NUFFIC is a foundation which lends its services to International Education both as a co-ordinating body in other (more direct) ways.